



Single-phase capacitors



Three-phase capacitors



Single-phase with two outputs - Twin Capacitors

### General

Advanced technology of KLV capacitors is based on construction of all-film capacitor sections, folding foil edge design, improved electrical and mechanical connections between sections and impregnation with environmentally compatible insulating oil. KLV capacitors have very low dielectric losses and are designed for long service life.

- **KLV 3xxx** - Internally fused capacitors. Each capacitor element has a separate internal fuse.
- **KLV1xxx** - Capacitors without internal fuses
- **KLVxxx4** - Single phase capacitors with two outputs (twin). Capacitors are supplied in sets of three to provide an economical unbalance detection scheme. This is particularly advantageous in low output capacitor banks.

### TECHNICAL DATA

Rated power (max.):	600 kVar, 50 Hz ; 720 kVar, 60 Hz
Rated voltage:	1.0 - 20 kV
Rated frequency:	50 or 60 Hz
Losses Total:	losses lower than 0.15 W/kVar ; Dielectric losses 0.07 W/kVar
Dielectric:	All-film (hazy polypropylene)
Impregnating fluid:	Environmentally compatible impregnating oil based on M/DBT (NON - PCB)
Discharge resistor:	Built in discharge resistor reduces the voltage on a de-energised capacitor from the crest of rated voltage to 75 V in 10 minutes or less (discharge to 50 V in 5 minutes on demand).
Permissible overloads:	Maximum permissible current $1,3 \times I_n$ continuously Maximum permissible voltage $1,1 \times U_n$ continuously, 12 h per day
Quality:	Iskra is certified according to ISO 9001 (quality) and ISO 14001 (environment)
Standards:	IEC 60871-1, ANSI / IEEE 18, NEMA CP 1

### Routine tests

Sealing test:	minimum of 16 hours at 75°C
Voltage test between terminals:	2.15 x rated voltage AC, 10 s or 4.3 x rated voltage DC, 10 s
AC voltage test between terminals and container:	According to IEC 60871-1, Table 3, 10 s
Discharge resistor test	
Measurement of losses (tan $\delta$ )	

### Service conditions

Temperature categories up to -40 /D

Upper temperature category limit	C	D
Maximum	50	55
Highest mean over 24 h	40	45
Highest mean over 1 year	30	35
Low temperature limit during operation	-25 °C or -40 °C	

<b>Installation:</b>	Outdoor or indoor
<b>Installation altitude (above sea level):</b>	1000 m standard, up to 4000 m on demand
<b>Case material:</b>	Stainless steel plate 1.5 mm thick
<b>Finish / Colour:</b>	Two-component durable painting RAL 7032 (light grey) on treated surfaces.
<b>Fixing:</b>	Depending on the height of capacitor, container is equipped with one or two mounting brackets on the narrower sides. Brackets have mounting slots 11 x 20 mm

### Terminals and connections

<b>Bushings:</b>	Brown or gray porcelain bushings, welded to the container.
<b>Thread of terminal stud:</b>	M14
<b>Current:</b>	110 A max.
<b>Connections:</b>	Terminal clamps with provision to accommodate any combination of 2 conductors from 4 mm <sup>2</sup> solid to 50 mm <sup>2</sup> stranded wire are available on demand. The capacitor unit grounding is provided by unpainted surface of mounting brackets.
<b>Pressure switch:</b>	with terminal cap Supplied on demand
<b>Name plate</b>	Durable plastic label with permanent printing

### Typical dimensions

Q <sub>n</sub> at 50 Hz (kVar)	U <sub>n</sub> KLV 1xxx (without internally fused)			U <sub>n</sub> KLV 3xxx (internally fused)			Dimensions (mm)						Weight (kg)	Weight* (kg)
	(kV)			(kV)			A	B	B*	C	D			
											BIL 75-95 kV	BIL 125 kV		
100	2.00	-	16.5 (20)	2.00	-	2.4	145	310	340	120 <sup>2R</sup>	240	315	26	28
150	2.00	-	16.5 (20)	2.00	-	4.8	145	400	430	200 <sup>2R</sup>	240	315	32	34
200	2.00	-	16.5 (20)	2.00	-	4.8	145	500	550	200 <sup>2R</sup>	240	315	39	42
250	2.27	-	16.5 (20)	2.27	-	7.2	145	600	670	200 <sup>2R</sup>	240	315	47	50
300	2.72	-	16.5 (20)	2.72	-	7.2	145	720	770	200 <sup>2R</sup>	240	315	53	56
350	3.18	-	16.5 (20)	3.18	-	9.6	145	840	870	200 <sup>2R</sup>	240	315	60	65
400	3.64	-	16.5 (20)	3.64	-	9.6	145	940	1000	200 <sup>2R</sup>	240	315	66	70
450	4.10	-	16.5 (20)	4.10	-	12	175	860	940	100 <sup>2R</sup>	240	315	75	78
500	4.56	-	16.5 (20)	4.56	-	14.4	175	920	1000	100 <sup>2R</sup>	240	315	82	89
550	5.00	-	16.5 (20)	5.00	-	14.4	190	920	970	100 <sup>2R</sup>	240	315	93	98
600	5.46	-	16.5 (20)	5.46	-	14.4	190	1000	1025	100 <sup>2R</sup>	240	315	93	98

### Notes:

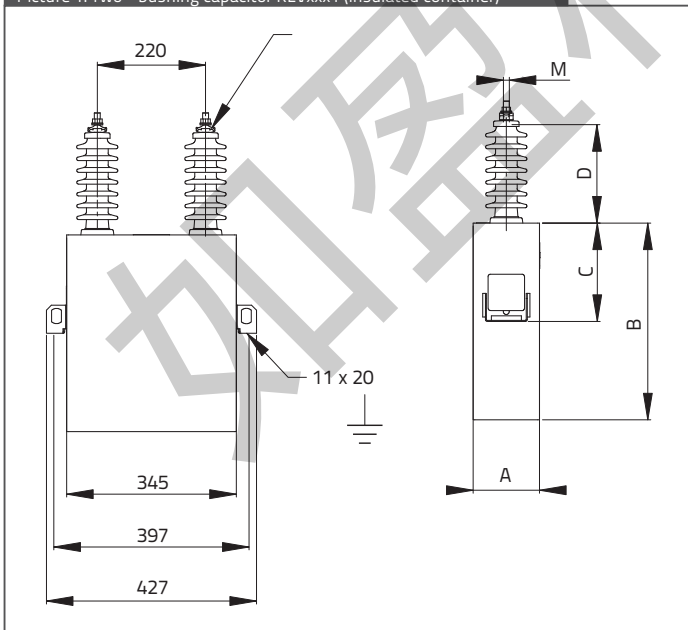
\* Dimensions with an asterisk (\*) refer to internally fused capacitors

- 1) Voltage in parenthesis ( ) refer to one-bushing capacitors only
- 2) For output and voltage outside this range, please contact factory
- 3) Case sizes are typical and actual sizes will be confirmed at the time of order
- 4) Capacitor container could have 2 or 4 brackets (1 or 2 brackets on narrower side)

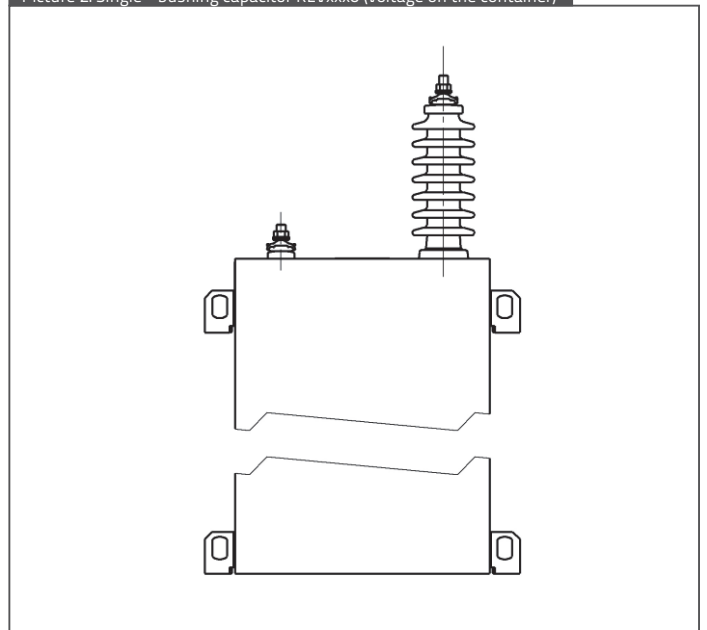
Dimension C - 2R means 1 bracket from each side (capacitor type KLVxx1x); 4R means 2 brackets on each side, one on the top and one on the bottom, except where the height is 310 mm or below, where brackets are on the bottom only (type KLVxx2x).

- 5) Dim A may expand up to 115% due to thermal flexure
- 6) Power at 60 Hz = 1.2 x power at 50 Hz

Picture 1: Two - bushing capacitor KLVxxx1 (insulated container)



Picture 2: Single - bushing capacitor KLVxxx0 (voltage on the container)



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# High Voltage Power Capacitors

## KLV 1xx3 and 3xx3, Three-phase Capacitors

### BIL 20/60 kV

#### Typical dimensions (picture 3)

U <sub>n</sub> (kV)	Q <sub>n</sub> at 50 Hz (kVar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
3.3 - 7.2	50	145	200	200	250	240	16	20
	100	145	290	325	250	240	23	26
	150	145	415	430	250	240	30	33
	200	145	520	550	250	240	37	42
	250	145	620	670	250	240	44	49
	300	145	740	770	250	240	51	55
	350	145	825	900	250	240	60	63
	400	145	940	1000	250	240	66	71
450	175	870	960	250	240	73	78	

### BIL 28/75 kV

#### Typical dimensions (picture 4)

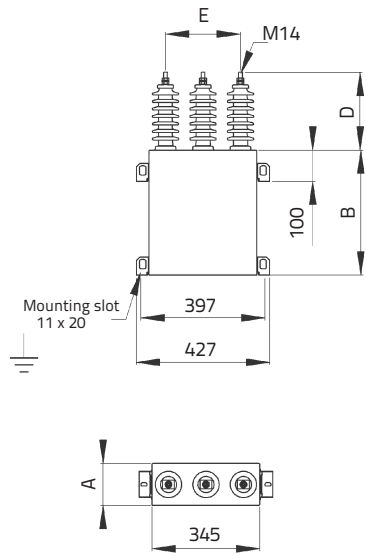
U <sub>n</sub> (kV)	Q <sub>n</sub> at 50 Hz (kVar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
up to 12	50	145	200	200	300	510	22	23
	100	145	290	310	300	510	28	29
	150	145	400	430	300	510	35	37
	200	145	500	550	300	510	42	44
	250	145	600	670	300	510	49	51
	300	145	720	770	300	510	55	60
	350	145	825	870	300	510	63	66
	400	145	940	1000	300	510	69	75
450	175	840	940	300	510	76	82	

#### Notes:

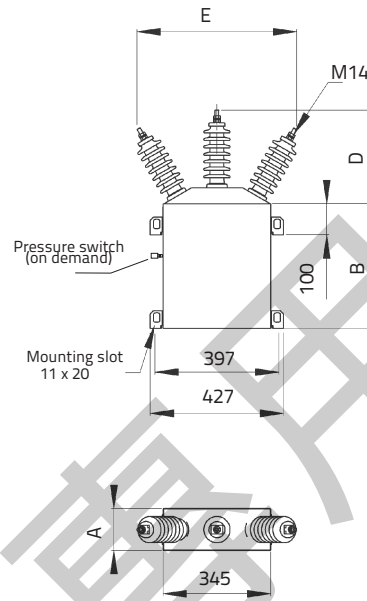
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- 1) For output and voltage outside this range, please contact factory
- 2) Case sizes are typical and actual sizes will be confirmed at the time of order
- 3) Pressure switch on demand
- 4) Either 2 or 4 fixing brackets are used, depending on the height of the unit. Special bracket positions can be provided if required. Please specify at the enquiry stage.
- 5) Dim A may expand up to 115 % due to thermal fiexure
- 6) Power at 60 Hz = 1.2 x power at 50 Hz

Picture 3



Picture 4



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# High Voltage Power Capacitors

## KLV 1xx4 and 3xx4, Single-phase Capacitors with two outputs (Twin)

### BIL 20/60 kV

#### Typical dimensions (picture 5)

U <sub>n</sub> (kV)	Q <sub>n</sub> at 50 Hz (kVar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
2.0 - 4.16	50 (2x25)	135	200	220	250	240	22	23
	100 (2x50)	145	290	310	250	240	28	29
	150 (2x75)	145	400	430	250	240	35	37
	200 (2x100)	145	500	550	250	240	42	44
	250 (2x125)	145	620	640	250	240	49	51
	300 (2x150)	145	720	770	250	240	51	55
	400 (2x200)	145	940	1000	250	240	66	71

### BIL 28/75 kV

#### Typical dimensions (picture 6)

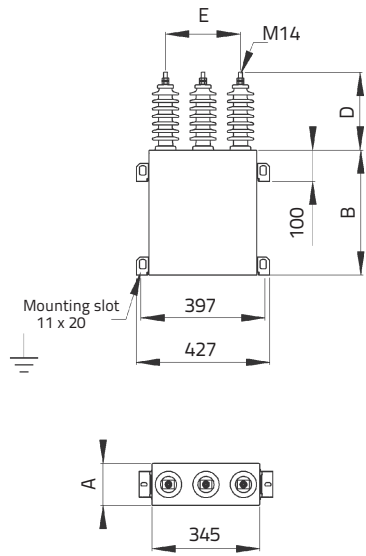
U <sub>n</sub> (kV)	Q <sub>n</sub> at 50 Hz (kVar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
up to 6.93	50 (2x25)	145	180	200	300	510	22	23
	100 (2x50)	145	290	330	300	510	28	29
	150 (2x75)	145	400	440	300	510	35	37
	200 (2x100)	145	500	550	300	510	42	44
	250 (2x125)	145	590	670	300	510	49	51
	300 (2x150)	145	690	770	300	510	55	60
	400 (2x200)	145	900	1000	300	510	69	75

#### Notes:

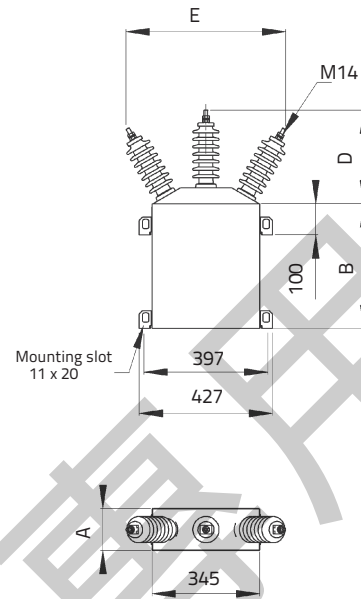
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- 4) Dim A may expand up to 115 % due to thermal flexure
- 5) Power at 60 Hz = 1.2 x power at 50 Hz

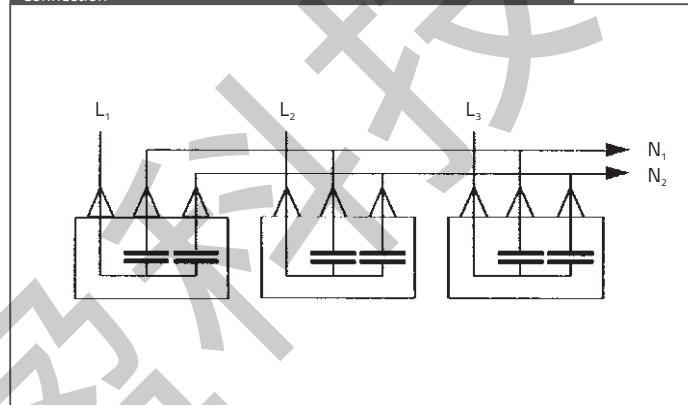
Picture 5



Picture 6



Connection



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