

NIROUTRANS



High voltage
power capacitors

Under License of
ISKRA

خبر و تراخس

طراح و سازنده :

- ترانس های اندازه گیری جریان
- ترانس های اندازه گیری ولتاژ
- بوشینگ خازنی
- کلید قطع و وصل ژنراتور
- خازن های اصلاح ضریب قدرت




Designer and manufacturer of Instrument Current and Voltage Transformers,
Condenser Bushings

Generator Circuit-Breaker Systems HEC3

High voltage power capacitors





 **NIROUTRANS** was established in 1990. The main activity of this company is production of current and voltage transformers in the range of 6 kV to 550 kV, transformer bushings up to 420 kV, Generator Circuit Breaker up to 13000 A and medium voltage power capacitor.

All the products are designed, manufactured and tested based on customers' requirements and in accordance with internationally well known standards.

The technology and know how for design, manufacturing and test of instrument transformers are from ABB Power Technology Sweden, Condenser Bushing from HSP Germany, Generator Circuit Breaker from ABB Switzerland and power factor capacitor from ISKRA.

Quality and conformity with customer's requirements have been the primary concerns of NirouTrans Company and in line with this policy, NTC's quality system was certified according to ISO 9001:2008 in 2010.

شرکت نیرو ترانس یکی از شرکت های وابسته به وزارت نیرو می باشد که در سال ۱۳۶۹ تاسیس گردیده است.

حوزه اصلی فعالیت این شرکت تولید انواع مختلف ترانس های اندازه گیری ولتاژ و جریان در کلیه سطوح ولتاژی از 6kV تا 550kV، پوشینگ های خازنی، کلید قطع و وصل ژنراتور و خازنهای اصلاح ضریب قدرت فشار متوسط می باشد.

تمام محصولات بر اساس نیاز مشتری و با در نظر گرفتن استانداردهای معتبر جهانی به کمک نرم افزارهای کامپیوتری طراحی شده و با استفاده از تجهیزات مدرن و نیروهای مجرب و کار آزموده تولید و تست می شوند.

این شرکت در حال حاضر دارای یکی از مدرن ترین کارخانجات ساخت ترانس های اندازه گیری می باشد که دانش فنی مربوطه را از شرکت ABB Power Technology Products سوئد، تکنولوژی ساخت پوشینگ های خازنی را از شرکت HSP آلمان، تکنولوژی ساخت کلید قطع و وصل ژنراتور را از شرکت ABB سوئیس اخذ نموده است و خازن های اصلاح ضریب قدرت فشار متوسط نیز تحت لیسانس شرکت ISKRA طراحی و ساخته می شود.

کیفیت بالای محصولات و برآورده نمودن نیازهای مشتریان اولویت اول و هدف اصلی شرکت نیرو ترانس می باشد که در این راستا این شرکت موفق به اخذ گواهینامه ISO 9001: 2008 در سال ۱۳۸۸ از شرکت RWTUV گردیده است.



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 environmentally impregnation with 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 75V in 10 minutes or less (discharge to 50V in 5 minutes on demand).

Permissible overloads

Maximum permissible current 1,3x in continuously
Maximum permissible voltage 1,1x UN continuously, 12h per day

Routine tests

Sealing test

Voltage test between terminals

2,15x rated voltage AC, 10 s
or
4,3x 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 δ)

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	

Installation

Outdoor or indoor

Installation altitude (above sea level)
1000m standard, up to 4000m on demand

Case material:

Stainless steel plate 1,5 mm thick

Finish / Colour

Two-component durable painting RAL 7032 (light grey) on treated surfaces)

Fixing

Depending on the height of capacitor, container is equipped with one or two mounting brackets on the narrower sides. Brackets have mounting slots 11x20 mm.

Terminals and connections

Bushings

Brown or gray porcelain bushings, welded to the container.

Thread of terminal stud

M14

Current

110A max.

Connections

Terminal clamps with provision to accommodate any combination of conductors from 4mm² solid to 50mm² stranded wire are available on demand.

The capacitor unit grounding is provided by unpainted surface of mounting brackets.

Pressure switch with terminal cap

Supplied on demand.

Nameplate

Durable plastic label with permanent printing

Standards

IEC 60871-1
ANSI / IEEE 18
NEMA CP 1

KLV 1xx1 (1xx0) and 3xx1 (3xx0), single-phase capacitors, typical dimensions

Q _N at 50 Hz (kvar)	U _N KLV 1xxx (without internal fuses) (kV)	U _N KLV 3xxx (internally fuses) (kV)	Dimensions (mm)						Weight (kg)	Weight* (kg)
			A	B	B*	C	D			
							BIL 75 - 95 kV	BIL 125 kV		
100	2,00 - 16,5 (20)	2,00 - 2,4	135	310	340	120 ^{2R}	240	315	26	28
150	2,00 - 16,5 (20)	2,00 - 4,8	135	400	430	200 ^{2R}			32	34
200	2,00 - 16,5 (20)	2,00 - 4,8	135	520	560	200 ^{2R}			39	42
250	2,27 - 16,5 (20)	2,27 - 7,2	135	640	680	200 ^{2R}			47	50
300	2,72 - 16,5 (20)	2,72 - 7,2	135	740	780	200 ^{2R}			53	56
350	3,18 - 16,5 (20)	3,18 - 9,6	135	840	920	200 ^{2R}			60	65
400	3,64 - 16,5 (20)	3,64 - 9,6	135	940	1000	200 ^{2R}			66	70
450	4,1 - 16,5 (20)	4,1 - 12	145	1000	1050	100 ^{4R}			75	78
500	4,56 - 16,5 (20)	4,56 - 14,4	175	920	1000	100 ^{4R}			82	89
550	5,00 - 16,5 (20)	5,00 - 14,4	190	960	1025	100 ^{4R}			93	98
600	5,46 - 16,5 (20)	5,46 - 14,4	190	960	1025	100 ^{4R}	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

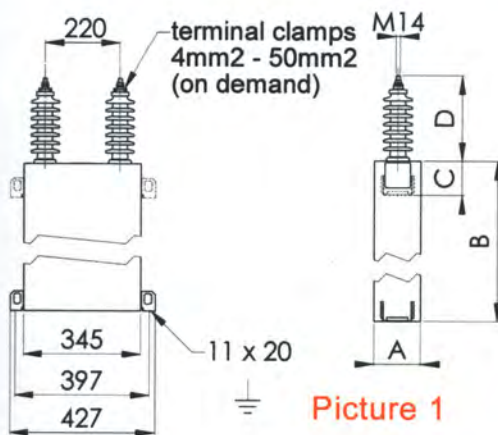
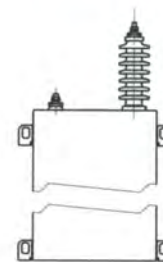
3) Case sizes are typical and actual sizes will be confirmed at the time of order

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 KLVxxx1); 4R means 2 brackets on each side, one on the top and one on the bottom, except where the height is 310mm or below, where brackets are on the bottom only (type KLVxxx2).

5) Dim A may expand up to 115% due to thermal flexure

6) Power at 60Hz = 1,2 x power at 50Hz

**Two - bushing capacitor KLVxxx1
(insulated container)**

Picture 1
**Single - bushing capacitor KLVxxx0
(voltage on the container)**

Picture 2

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Technical data and design can be subject to change and should be confirmed prior to ordering.

KLV 1xx3 and 3xx3, three-phase capacitors,
BIL 20/60 kV, typical dimensions (Picture 3)

KLV 1xx3 and 3xx3, three-phase capacitors,
BIL 28/75 kV, typical dimensions (Picture 4)

U _N (kV)	Q _N at 50 Hz (kvar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
3,3 - 7,2	50		180	200			16	20
	100		275	290			23	26
	150		370	400			30	33
	200		470	520			37	42
	250	145	570	620	250	240	44	49
	300		670	720			51	55
	350		770	825			60	63
	400		870	940			66	71
	450		970	1050			73	78

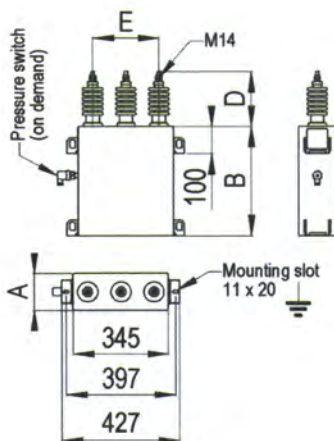
U _N (kV)	Q _N at 50 Hz (kvar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
up to 12	50		180	200			22	23
	100		275	290			28	29
	150		370	400			35	37
	200		470	520			42	44
	250	145	570	620	300	510	49	51
	300		670	720			55	60
	350		770	825			63	66
	400		870	940			69	75
	450		970	1050			76	82

Notes:

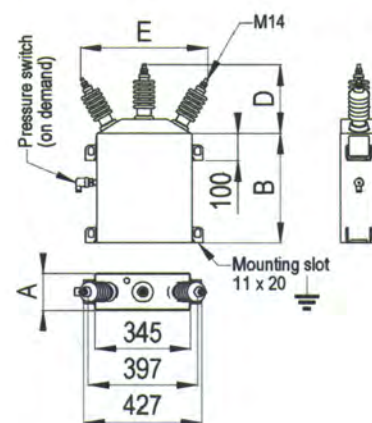
* Dimensions with an asterisk (*) refer to internally fused capacitors

- 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 flexure
- 6) Power at 60Hz = 1,2 x power at 50Hz

Three - Phase capacitors



Picture 3



Picture 4

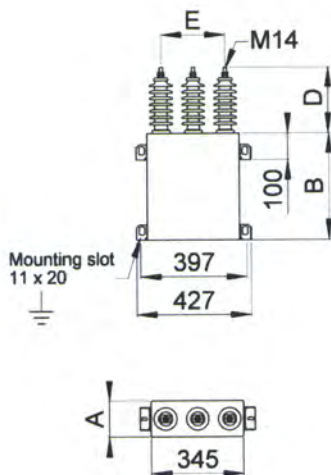
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KLV 1xx4 and 3xx4, single-phase capacitors
with two outputs (twin), BIL 20/60 kV,
typical dimensions (Picture 5)

U _N (kV)	Q _N at 50 Hz (kvar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
2,0-4,16	50 (2x25)		200	220			22	23
	100 (2x50)		310	340			28	29
	150 (2x75)		400	430			35	37
	200 (2x100)	135	520	560	250	240	42	44
	250 (2x125)		640	680			49	51
	300 (2x150)		740	780			51	55
	400 (2x200)		940	1000			66	71

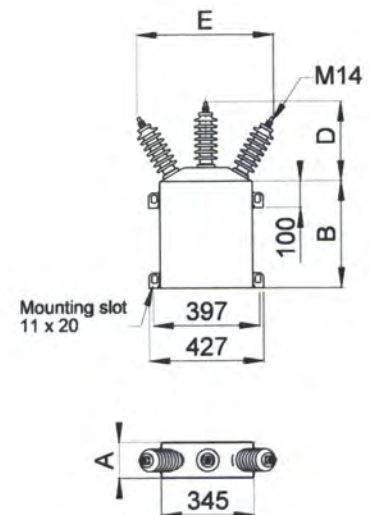
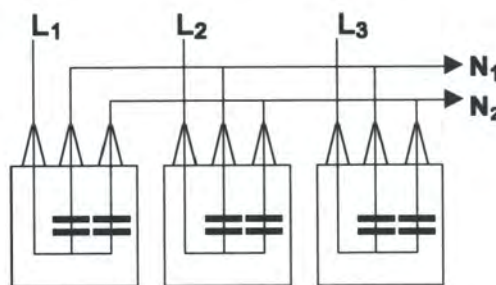
KLV 1xx4 and 3xx4, single-phase capacitors
with two outputs (twin), BIL 28/75 kV,
typical dimensions (Picture 6)

U _N (kV)	Q _N at 50 Hz (kvar)	Dimensions (mm)					Weight (kg)	Weight* (kg)
		A	B	B*	D	E		
up to 6,93	50 (2x25)		200	220			22	23
	100 (2x50)		310	340			28	29
	150 (2x75)		400	430			35	37
	200 (2x100)	135	520	560	300	510	42	44
	250 (2x125)		640	680			49	51
	300 (2x150)		740	780			55	60
	400 (2x200)		940	1000			69	75



Picture 5

CONNECTION



Picture 6

Notes:

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

- 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) 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.
- 4) Dim A may expand up to 115% due to thermal flexure
- 5) Power at 60Hz = 1,2 x power at 50Hz

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