



Instrument transformers



MINEL
ENERGY
— SINCE 1956 —

www.minelfepo.com

Let us introduce ourselves



Main activities of the company

Production of low and medium voltage instrument transformers

Production of supporting and bushing insulators

Our company was established in 1956 in Zrenjanin under the name Minel Fepo

During the six decades of presence on the market of power equipment the company has become a synonym for the quality and reliability in the country and worldwide.

Since 2017. the company operates under the name “Minel Energy”.

Minel Energy continues a production of well-known products - instrument transformers and insulators for domestic and foreign markets.

The products entirely fulfill all the requests set by the IEC and GOST standards.

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Low voltage

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Medium voltage

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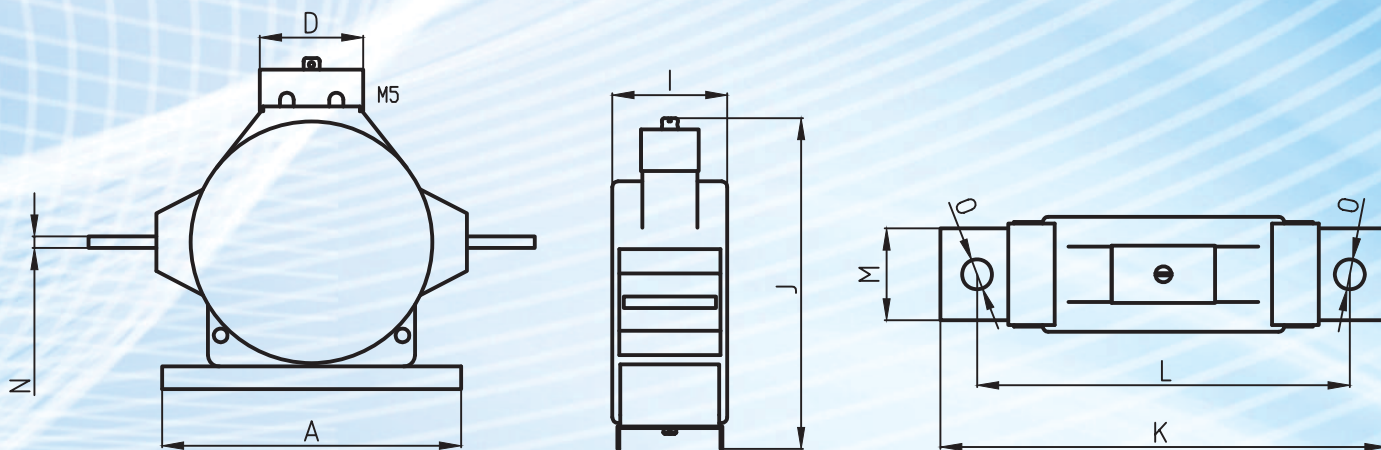
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ST 0.6-1, ST 0.6-1R

LOW VOLTAGE CURRENT TRANSFORMER



Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)										
	A	D	G	H	I	J	K	L	M	N	O
ST 0.6-1	130	45	6	116	50	144	194	164	40	5	13
ST 0.6-1 R	130	45	6	116	50	180	226	196	40	5	13

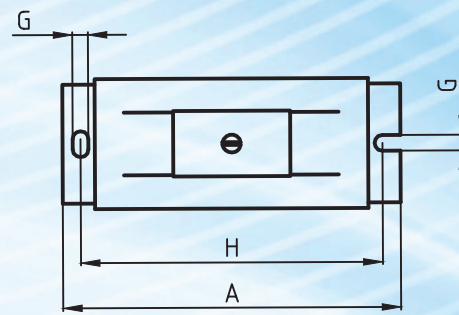
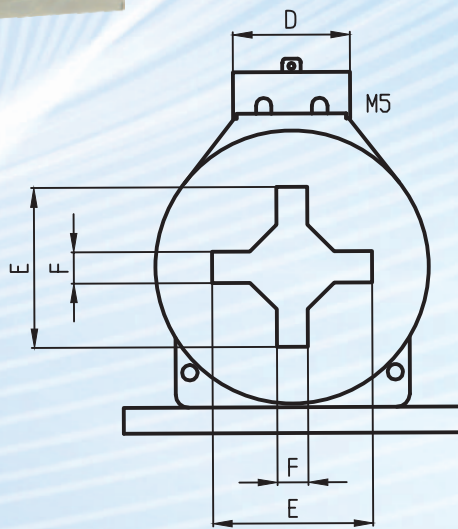
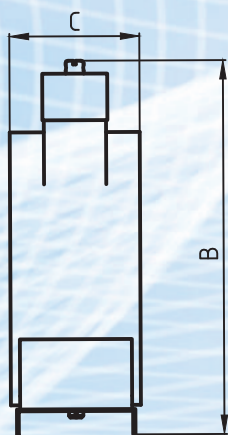
TECHNICAL DATA	ST 0.6 - 1		ST 0.6 - 1R	
Standard	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746
Installation	indoor		indoor	
Insulation material	polystyrene(VO)selfextinguishable		epoxy resin	
Insulation class	E		E	
Maximum equipment voltage (Um) (kV)	0.72		0.72	
Rated withstanding network frequency voltage (50Hz/1min) (kV)	3		3	
Rated frequency (Hz)	50; 60		50; 60	
Rated short-term thermal current (Ith) (kA)	(60) x In; max. 15 kA		(60) x In; max. 15 kA	
Rated dynamic current (Idyn) (kA)	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA
Rated current of primary coil (A)	5 - 300		5 - 300	
Rated current of secondary coil (A)	1; 5		1; 5	
Rated power of the secondary coil (VA)	1,25; 2,5; 5; 7,5; 10; 15		1,25; 2,5; 5; 7,5; 10; 15; 30	
Accuracy class of the secondary coil: measuring & protection	0,5; 0,5S; 1		0,5; 0,5S; 1 / 5P; 10P	
Security factor/ Borderline accuracy factor	5; 10		5; 10 / 5; 10; 15; 20	
Mass (kg)	1,5		3,5	

ST 0.6-2, ST 0.6-3

LOW VOLTAGE CURRENT TRANSFORMER



Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)							
	A	B	C	D	E	F	G	H
ST 0.6-2	130	144	50	45	41	11	6	116
ST 0.6-3	130	144	50	45	61	11	6	116

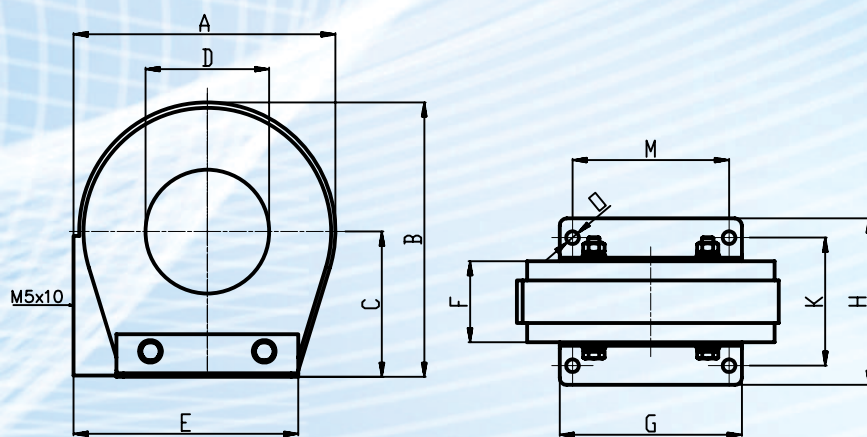
TECHNICAL DATA	ST 0.6 - 2		ST 0.6 - 3	
Standard	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746
Installation	indoor		indoor	
Insulation material	polystyrene(VO)selfextinguishable		polystyrene(VO)selfextinguishable	
Insulation class	E		E	
Maximum equipment voltage (Um) (kV)	0.72		0.72	
Rated withstanding grid frequency voltage (50Hz/1min) (kV)	3		3	
Rated frequency (Hz)	50; 60		50; 60	
Rated short-term thermal current (Ith) (kA)	(60) x In; max. 36 kA		(60) x In; max. 60 kA	
Rated dynamic current (Idyn) (kA)	no limit	no limit	no limit	no limit
Rated current primary coil (A)	100-600		300 - 1000	
Rated current secondary coil (A)	1; 5		1; 5	
Rated current of the secondary measuring coil (VA)	1,25; 2,5; 5; 7,5; 10; 15		1,25; 2,5; 5; 7,5; 10; 15	
Accuracy class of the secondary measuring coil	0,5; 0,5S; 1		0,5; 0,5S; 1	
Security factor	5; 10		5; 10	
Mass (kg)	1		1	



ST-087, ST-180

LOW VOLTAGE CABLE CURRENT INSTRUMENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)										
	A	B	C	D	E	F	G	H	K	M	O
ST-087	184	193	102	87	158	57	128	117	90	110	9
ST-180	309	336	180	180	264	90	175	150	120	130	11,5

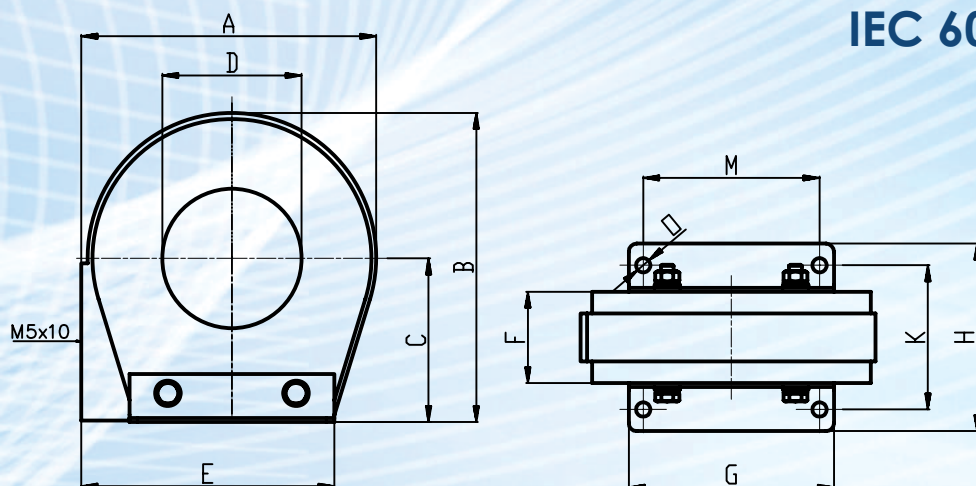
TECHNICAL DATA	ST - 087		ST - 180	
Standard	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746
Installation	indoor		indoor	
Insulation material	epoxy resin		epoxy resin	
Isolation class	E		E	
Maximum equipment voltage (Um) (kV)	0.72		0.72	
Rated withstanding grid frequency voltage (50Hz/1min) (kV)	3		3	
Rated frequency (Hz)	50; 60		50; 60	
Rated short-term thermal current (Ith) (kA)	(60) x In; max. 60 kA		(60) x In; max. 120 kA	
Rated dynamic current (Idyn) (kA)	no limit	no limit	no limit	no limit
Rated current of primary coil (A)	50-1500		50 - 4000	
Rated current of secondary coil (A)	1; 5		1; 5	
Rated power of the secondary coil for measuring / protection (VA)	1,25; 2,5; 5; 7,5; 10; 15		1,25; 2,5; 5; 7,5; 10; 15	
Accuracy class of the secondary coil: measuring /protection	0,5; 0,5S; 1 / 5P; 10P		0,5; 0,5S; 1 / 5P; 10P	
Security factor/ Accuracy limiting factor	5; 10 / 5; 10; 15; 20; 30		5; 10 / 5; 10; 15; 20; 30	
Mass (kg)	3,5		16,5	



ST-200, ST-NN-110

LOW VOLTAGE CABLE CURRENT INSTRUMENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



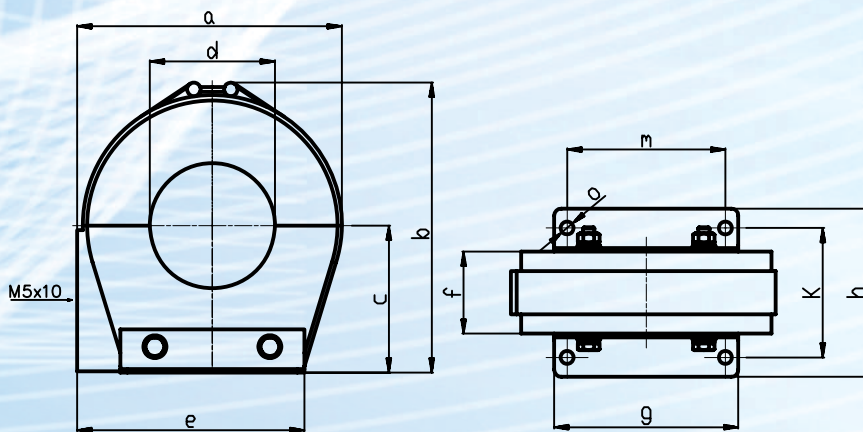
Transformer type	Dimensions (mm)										
	A	B	C	D	E	F	G	H	K	M	O
ST-200	309	336	180	200	264	90	175	150	120	130	11,5
ST-NN-110	184	193	102	110	158	34	128	117	90	110	9

TECHNICAL DATA	ST - 200		ST - NN - 110	
Standard	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746
Installation	indoor		indoor	
Insulation material	epoxy resin		epoxy resin	
Insulation class	E		E	
Maximum equipment voltage (Um) (kV)	0.72		0.72	
Rated withstanding grid frequency voltage (50Hz/1min) (kV)	3		3	
Rated frequency (Hz)	50; 60		50; 60	
Rated short-term thermal current (I _{th}) (kA)	(60) x I _n ; max. 60 kA		(80) x I _n ; max. 60 kA	
Rated dynamic current (I _{dyn}) (kA)	no limit	no limit	no limit	no limit
Rated current of primary coil (A)	50-4000		50-2000	
Rated current of secondary coil (A)	1; 5		1; 5	
Rated power of secondary coil: measuring (VA)	1,25; 2,5; 5; 10; 15		1,25; 2,5; 5; 10; 15	
Accuracy class of the secondary coil: measuring / protection	0,2; 0,2S; 0,5; 0,5S; 1 / 5P; 10P		0,2S; 0,2; 0,5S; 0,5; 1 / 5P; 10P	
Security factor / Accuracy limiting factor	5; 10/5; 10; 15; 20; 30		5; 10/5; 10; 15; 20; 30	
Mass (kg)	15		3,5	

KS-5, KS-3

LOW VOLTAGE CABLE-TYPE INSTRUMENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)										
	A	B	C	D	E	F	G	H	K	M	O
KS-5	190	205	102	85	158	57	128	117	90	110	9
KS-3	310	350	180	180	264	90	175	150	120	130	11,5

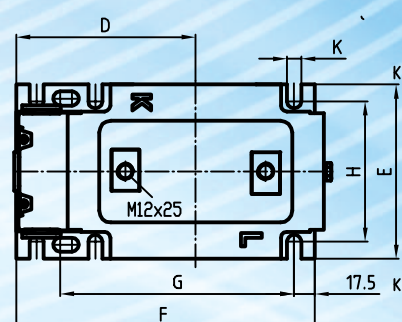
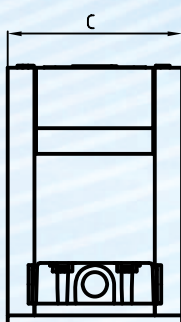
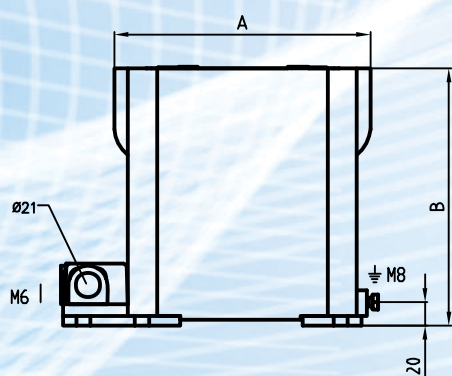
TECHNICAL DATA	KS - 5		KS - 3	
Standard	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746
Installation	indoor		indoor	
Insulation material	epoxy resin		epoxy resin	
Insulation class	E		E	
Maximum equipment voltage (Um) (Kv)	0.72		0.72	
Rated withstanding grid frequency and voltage (50Hz/1min) (kV)	3		3	
Rated frequency (Hz)	50; 60		50; 60	
Rated short-term thermal current (I _{th}) (kA)	(60) x I _n ; max. 60 kA		(60) x I _n ; max. 120 kA	
Rated dynamic current (I _{dyn}) (kA)	no limit	no limit	no limit	no limit
Rated current of primary coil (A)	50-1500		50 - 4000	
Rated current of secondary coil (A)	1; 5		1; 5	
Rated power of secondary coil: measuring (VA)	1,25; 2,5; 5; 7,5; 10; 15		1,25; 2,5; 5; 7,5; 10; 15	
Accuracy class of the secondary coil	5P; 10P		5P; 10P	
Accuracy limiting factor	5; 10; 15; 20; 30		5; 10; 15; 20; 30	
Mass (kg)	3,5		16,5	



AS 12/150

SUPPORT TYPE INDOOR CURRENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



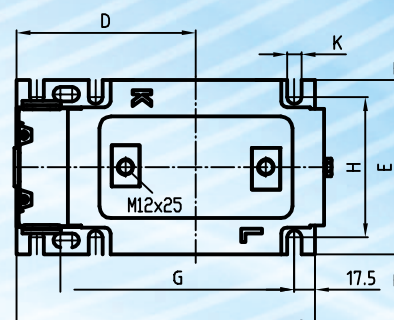
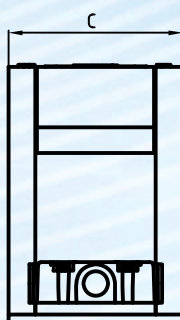
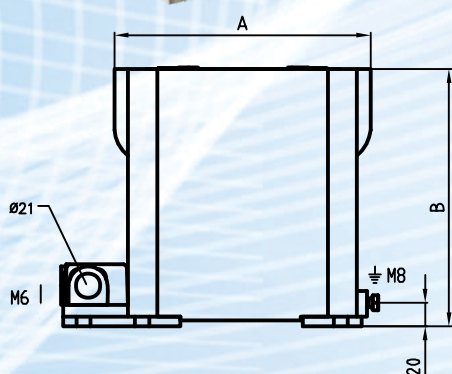
Transformer type	Dimensions (mm)									
	A	B	C	D	E	F	G	H	K	
AS12/150-b1 60kA (2x30kA)	219	220	149	153	149	305	250	120	12	
AS12/150-b2 120kA (2x60kA)	299	220	149	183	149	335	280	120	12	
AS12/15-b4 120kA (2x60kA)	419	220	149	302,5	149	455	400	120	12	

TECHNICAL DATA	AS 12/150	
Standard	IEC 60044-1	GOST 7746
Installation	indoor	
Insulation material	epoxy resin	
Isolation class	E	
Maximum equipment voltage (Um) (Kv)	12	
Rated withstanding grid frequency and voltage of primary coil (50Hz/1min) (Kv)	28	42
Rated withstanding grid frequency and voltage of secondary coil (50Hz/1min) (Kv)	3	
Rated lightning impulse withstand voltage (kV)	75	
Rated frequency (Hz)	50; 60	
Rated short-term thermal currenr (Ith) (kA)	(100-1000) x In; max. 120 kA	
Rated dynamic current (Idyn) (kA)	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA
Rated current of primary coil (A)	5-2500	
Rated current of secondary coil (A)	1; 5	
Rated power of secondary coil: measuring (VA)	2,5; 5; 10; 15; 30	
Accuracy class of secondary coil: measuring/protecting	0,2; 0,5; 0,2S; 0,5S; 1 / 5P; 10P	
Security factor / Accuracy limiting factor	5; 10 / 5; 10; 15; 20; 30	
Mass (kg)	16-28	

AN 24/180

SUPPORT TYPE INDOOR CURRENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



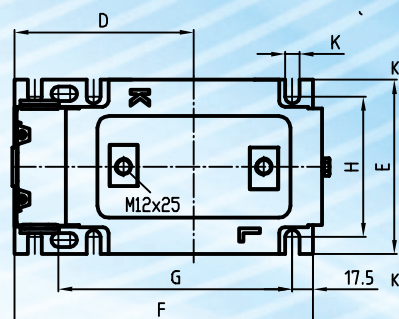
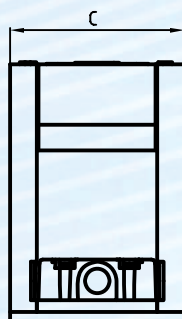
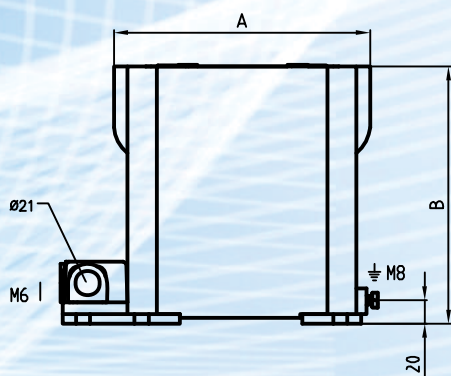
Transformer type	Dimensions (mm)								
	A	B	C	D	E	F	G	H	K
AS24/180-d1 60kA (2x30kA)	191	280	179	134,5	179	227	160	150	14
AS24/180-b2 60kA (2x30kA)	219	280	149	153	179	255	185	150	14
AS24/180-b3 120kA (2x60kA)	299	280	149	183	179	335	265	150	14
AS24/180-d4 120kA (2x60kA)	316	280	179	195	179	357	287	150	14

TECHNICAL DATA	AS 24/180	
Standard	IEC 60044-1	GOST7746
Installation	indoor	
Isolation material	epoxy resin	
Insulation class	E	
Maximum equipment voltage(U _m) (kV)	24	
Rated withstanding grid frequency and voltage for the primary coil (50Hz/1min) (kV)	50	65
Rated withstanding grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3	
Rated lightning impulse withstand voltage (kV)	125	
Rated frequency (Hz)	50	
Rated short-term thermal current (I _{th}) (kA)	(100-1000) x I _n ; max. 120 kA	
Rated dynamic current (I _{dyn}) (kA)	2,5 x I _{th} ; max 120kA	2,53 x I _{th} ; max 120kA
Rated current of primary coil (A)	5-2000	
Rated current of secondary coil (A)	1; 5	
Rated power of secondary coil: measuring (VA)	2,5; 5; 10; 15; 30	
Accuracy class of secondary coil: measuring/protecting	0,2; 0,5; 1; 0,2S; 0,5S / 5P; 10P	
Security factor / Accuracy limiting factor	5; 10 / 5; 10; 15; 20; 30	
Mass (kg)	18-38	

AN 36/250

SUPPORT TYPE INDOOR CURRENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)								
	A	B	C	D	E	F	G	H	K
AN36/250-d2 120kA (2x60kA)	349	390	179	215	249	385	300	225	14
AN36/250-f2 120kA (2x60kA)	349	390	224	215	249	385	300	225	14

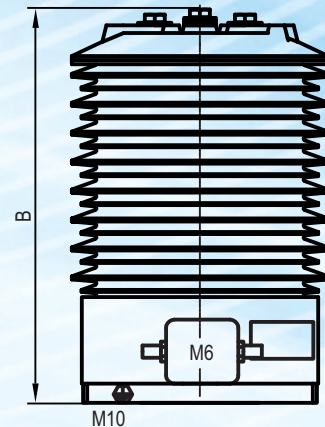
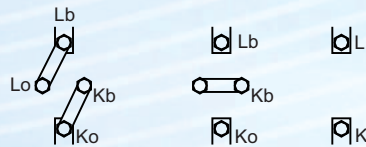
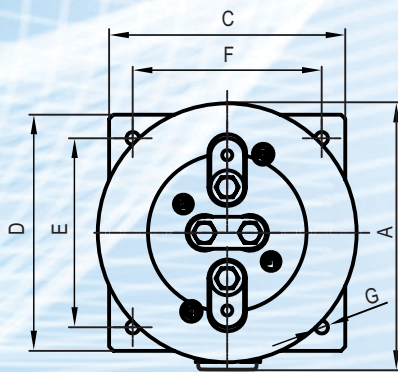
TECHNICAL DATA	AN 36/250	
Standard	IEC 60044-1	GOST7746
Installation	indoor	
Isolation material	epoxy resin	
Insulation class	E	
Maximum equipment voltage (Um) (kV)	36	42
Rated withstanding grid frequency and voltage for the primary coil (50Hz/1min) (kV)	70	95
Rated withstanding grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3	
Rated lightning impulse withstand voltage (Hz)	170	190
Rated frequency (Hz)	50; 60	
Rated short-term thermal current (Ith) (kA)	(100-1000) x In; max. 120 kA	
Rated dynamic current (Idyn) (kA)	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA
Rated current of primary coil (A)	5-1250	
Rated current of secondary coil (A)	1; 5	
Rated power of secondary coil: measuring/ protecting (VA)	2,5; 5; 10; 15; 30	
Accuracy class of secondary coil: measuring/protecting	0,2; 0,5; 0,2S, 0,5S; 1 / 5P, 10P	
Security factor / Accuracy limiting factor	5; 10 / 5; 10; 15; 20; 30	
Mass (kg)	28-48	



STSM-12, STSM-24, STSM-38

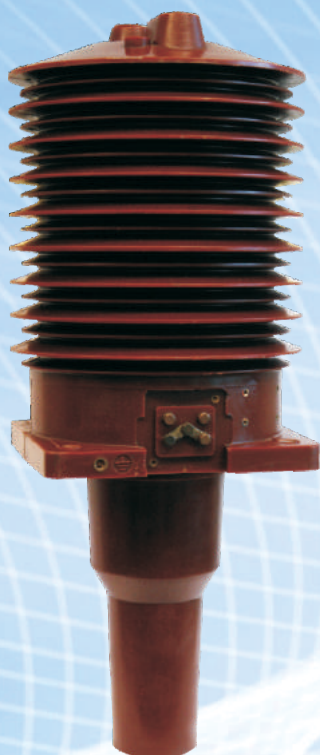
OUTDOOR INSTRUMENT CURRENT TRANSFORMER

Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)						
	A	B	C	D	E	F	G
STSM-12	315	312	280	276	224	224	ø14
STSM-24	315	452	280	276	224	224	ø14
STSM-38	315	520	280	276	224	224	ø14

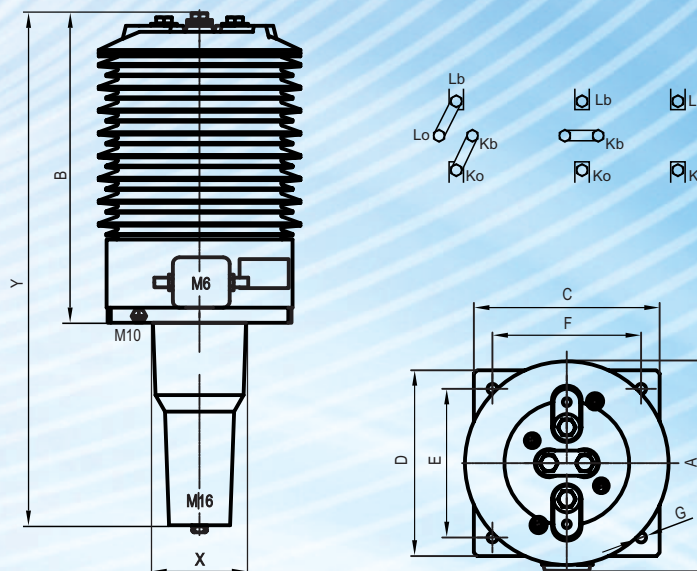
TECHNICAL DATA	STSM 12		STSM 24		STSM 38	
Standard	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746	IEC 60044-1	GOST 7746
Installation	outdoor		outdoor		outdoor	
Isolation materia	cycloaliphatic epoxy resin		cycloaliphatic epoxy resin		cycloaliphatic epoxy resin	
Insulation class	F		F		F	
Maximum equipment voltage (Um) (kV)	12		24		36	42
Rated withstanding grid frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42	50	65	70	95
Rated withstanding grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3		3		3	
Rated lightning impulse withstand voltage (Hz)	75		125		170	190
Rated frequency (Hz)	50		50		50	
Rated short-term thermal current (Ith) (kA)	(100-500) x In; max. 60kA		(100-500) x In; max. 60kA		(100-500) x In; max. 60kA	
Rated dynamic current (Idyn) (kA)	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA
Rated current of primary coil (A)	10-600		10-600		10-600	
Rated current of secondary coil (A)	1; 5		1; 5		1; 5	
Rated power of secondary coil : measuring/ protection (VA)	2,5; 5; 10; 15; 30		2,5; 5; 10; 15; 30		2,5; 5; 10; 15; 30	
Accuracy class of secondary coil: measuring/ protection	0,2; 0,5; 1; 0,2S; 0,5S / 5P; 10P		0,2; 0,5; 1; 0,2S; 0,5S / 5P; 10P		0,2; 0,5; 1; 0,2S; 0,5S / 5P; 10P	
Security factor / Accuracy limiting factor	5; 10 / 5; 10; 15; 20; 30		5; 10 / 5; 10; 15; 20; 30		5; 10 / 5; 10; 15; 20; 30	
Mass (kg)	30		48		65	



STPP-38

INSTRUMENT CURRENT TRANSFORMER INDOOR/ OUTDOOR INSTALLATION

Standard
IEC 60044-1 GOST 7746



Transformer type	Dimensions (mm)								
	A	B	C	D	E	F	G	Y	X
STPP-38	315	520	280	276	224	224	∅14	830	∅142

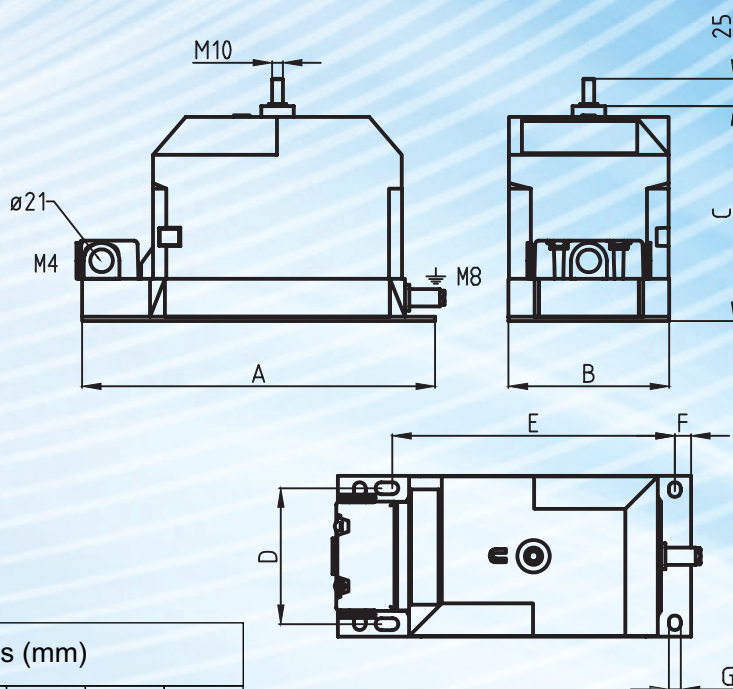
TECHNICAL DATA	STPP- 38	
Standard	IEC 60044-1	GOST7746
Installation	Indoor/ Outdoor	
Insulation material	epoxy resin	
Insulation class	E	
Maximum equipment voltage (Um) (kV)	36	42
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	70	90
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3	
Rated lightning impulse withstand voltage (kV)	170	190
Rated frequency (Hz)	50	
Rated short-term thermal current (Ith) (kA)	(100-1000) x In; max. 120 kA	
Rated dynamic current (Idyn) (kA)	2,5 x Ith; max 120kA	2,53 x Ith; max 120kA
Rated current of primary coil (A)	5-600	
Rated current of secondary coil (A)	1; 5	
Rated power of secondary coil: measuring/protection (VA)	2,5; 5; 10; 15; 30	
Accuracy class of secondary coil: measuring/ protection	0,2; 0,5; 1; 0,2S; 0,5S / 5P; 10P	
Security factor / Accuracy limiting factor	5; 10; 15; 20; 30	
Mass (kg)	65	



REL 10, REL 20

INDOOR INSTRUMENT SINGLE POLE VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST 1983



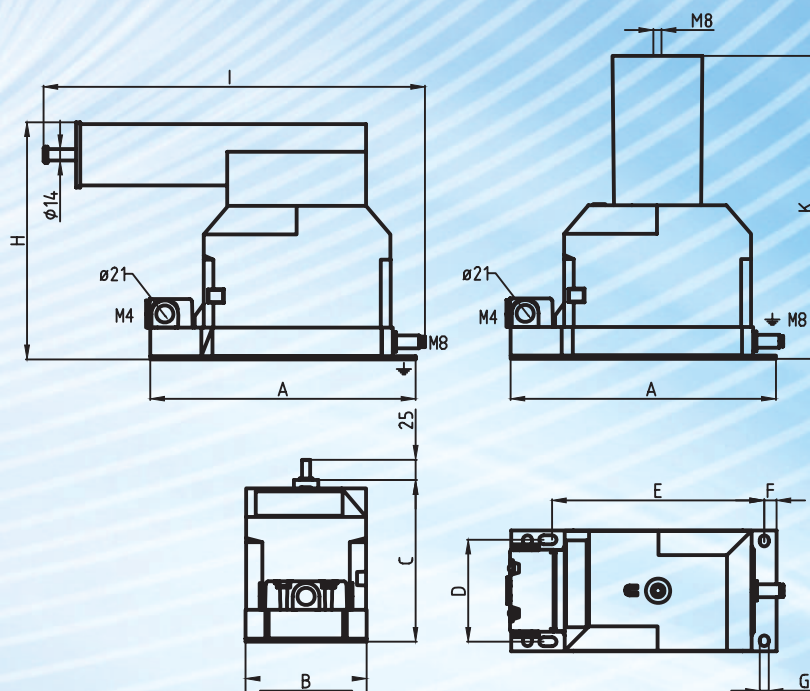
Transformer type	Dimensions (mm)						
	A	B	C	D	E	F	G
REL 10	325	148	200	125	260	15	11
REL 20	351	178	230	150	275	20	14

TECHNICAL DATA	REL 10		REL 20	
	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
Standard	indoor		indoor	
Installation	epoxy resin		epoxy resin	
Insulation material	E		E	
Insulation class	12		24	
Maximum equipment voltage (Um) (kV)	28		50	
Rated withstanding grid frequency and voltage for the primary coil (50Hz/1min) (kV)	42		65	
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3		3	
Rated lightning impulse withstand voltage (kV)	75		125	
Rated primary voltage (kV)	3/√3; 5/√3; 6/√3; 10/√3		10/√3; 15/√3; 20/√3	
Rated secondary voltage (V)	100/√3 ili 110/√3		100/√3 ili 110/√3	
Tertiary rated voltage (V)	100/3		100/3	
Rated power (VA)	10-100		10-100	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1	
Rated tertiary power (VA)	10 - 60		10 - 60	
Protection coil accuracy class	3P; 6P		3P; 6P	
Bordering thermal current of the secondary coil (A)	7		7	
Rated frequency(Hz)	50; 60		50; 60	
Rated voltage factor	1,9 x Un / 8h		1,9 x Un / 8h	
Mass (kg)	18,5		25	

REL SP 10, REL SP 20, REL SPH1(2)10, REL SPH1(2)20

INDOOR INSTRUMENT SINGLE POLE VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST1983



Transformer type	Dimensions (mm)									
	A	B	C	D	E	F	G	H	I	K
REL SPH1(2)10	325	148	198	125	260	15	11	291	468	
REL SP 10	325	148	198	125	260	15	11			385
REL SP 20	351	178	231	150	275	20	14			507
REL SPH1(2)20	351	178	231	150	275	20	14	340	595	

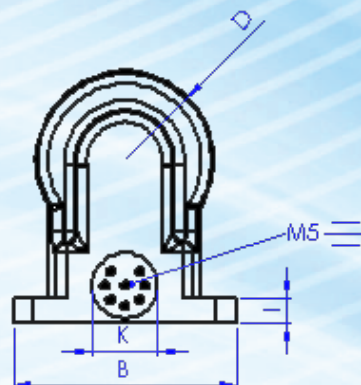
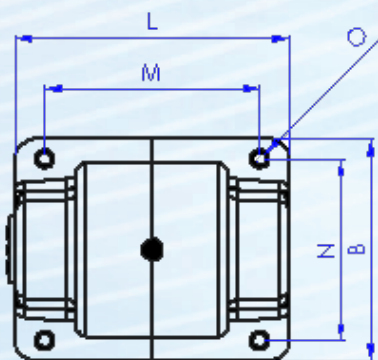
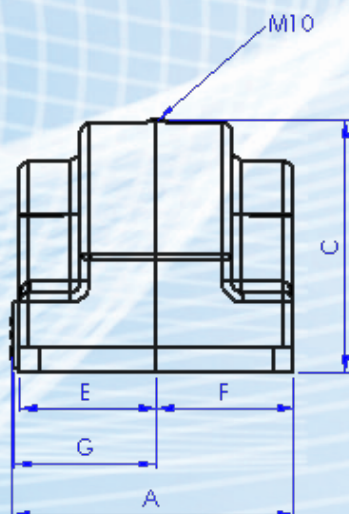
TECHNICAL DATA	REL SP 10 i REL SPH1(2)10		REL SP 20 i REL SPH1(2)20	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
Installation	indoor		indoor	
Insulation material	epoxy resin		epoxy resin	
Insulation class	E		E	
Maximum equipment voltage (Um) (kV)	12		24	
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42	50	65
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3		3	
Rated lightning impulse withstand voltage (kV)	75		125	
Rated primary voltage (kV)	3/√3; 5/√3; 6/√3; 10/√3		10/√3; 15/√3; 20/√3	
Rated secondary voltage (V)	100/√3 ili 110/√3		100/√3 ili 110/√3	
Tertiary rated voltage (V)	100/3		100/3	
Rated power (VA)	10-100		10-100	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1	
Tertiary rated power (VA)	10- 60		10 - 60	
Accuracy class for protection	3P; 6P		3P; 6P	
Borderline thermal current of the secondary coil (A)	7		7	
Rated frequency (Hz)	50; 60		50; 60	
Rated voltage factor	1,9 x Un / 8h		1,9 x Un / 8h	
Mass (kg)	23		32,5	



UNE 10, UNE 20

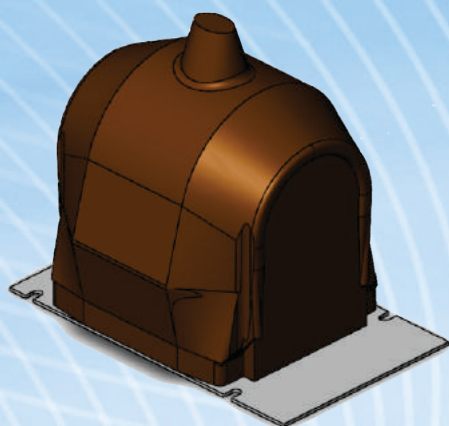
INDOOR INSTRUMENT SINGLE POLE VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST1983



Transformer type	Dimensions (mm)												
	A	B	C	D	E	F	G	I	K	L	M	N	O
UNE 10	275	220	250	R88	135	135	140	25	ø65	270	215	180	ø13
UNE 20	315	242	300	R112	155	155	160	25	ø65	310	240	207	ø13

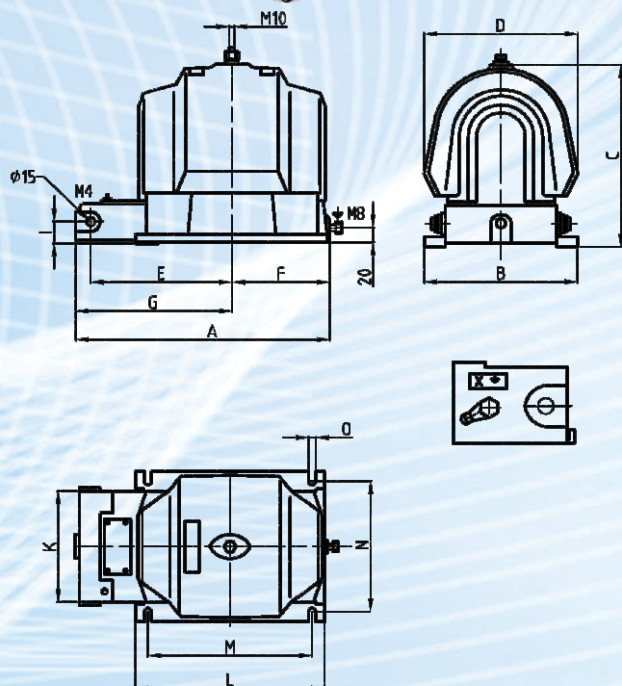
TECHNICAL DATA	UNE 10		UNE 20	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
Installation	indoor		indoor	
Insulation material	epoxy resin		epoxy resin	
Insulation class	E		E	
Maximum equipment voltage (Um) (kV)	12		24	
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42	50	65
Rated withstand grid freq. and voltage sec coil (50Hz/1min) (kV)	3		3	
Rated lightning impulse withstand voltage	75		125	
Rated primary voltage (kV)	3/√3; 6/√3; 10/√3		10/√3; 15/√3; 20/√3	
Rated secondary voltage (V)	100/√3 ili 110/√3		100/√3 ili 110/√3	
Tertiary rated voltage (V)	100/3		100/3	
Rated power (VA)	10-180		10-180	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1	
Tertiary rated power (VA)	10- 90		10 - 90	
Accuracy class for protection coil	3P; 6P		3P; 6P	
Borderline thermal current of the secondary coil (A)	6		8	
Rated frequency (Hz)	50; 60		50; 60	
Rated voltage factor	1,9 x Un/8h		1,9 x Un/8h	
Mass (kg)	30		43	



UNE 30

INDOOR INSTRUMENT SINGLE POLE VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST1983



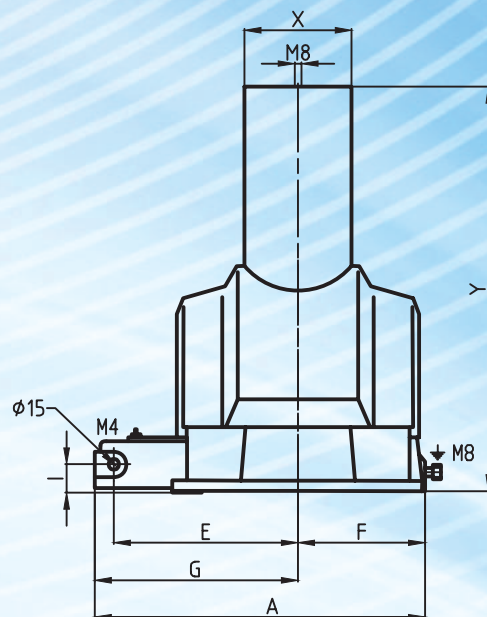
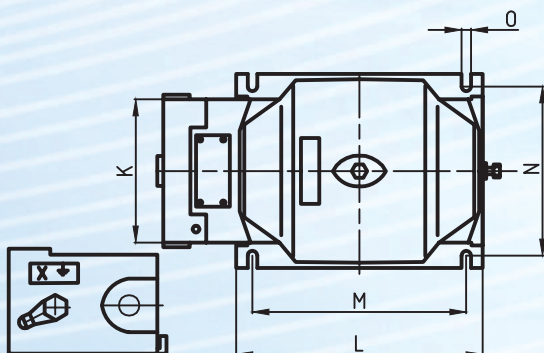
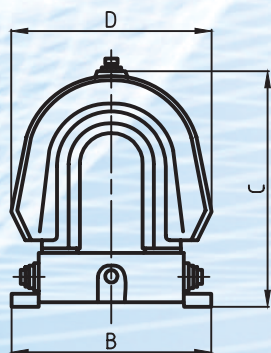
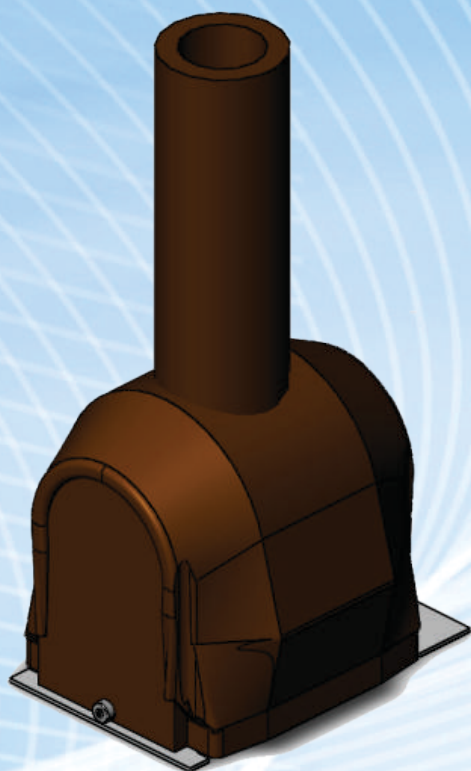
Transformer type	Dimensions (mm)												
	A	B	C	D	E	F	G	I	K	L	M	N	O
UNE 30	415	250	390	290	220	175	245	25	150	350	300	225	12

TECHNICAL DATA	UNE 30	
Standard	IEC 60044-2	GOST1983
Installation	indoor	
Insulation material	epoxy resin	
Insulation class	E	
Maximum equipment voltage (Um) (kV)	36	42
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	70	95
Rated withstand grid freq and V of secondary coil (50Hz/1min) (kV)	3	
Rated lightning impulse withstand voltage	170	190
Rated primary voltage (kV)	20/√3; 25/√3; 30/√3; 35/√3	
Rated secondary voltage (V)	100/√3 ili 110/√3	
Tertiary rated voltage (V)	100/3	
Rated power (VA)	10-180	
Accuracy class	0,2; 0,5; 1	
Tertiary rated power (VA)	10-60	
Accuracy class for protection	3P; 6P	
Borderline thermal current of the secondary coil (A)	8	
Rated frequency (Hz)	50; 60	
Rated voltage factor	1,9 x Un/8h	
Mass (kg)	60	

UNE SP 10, UNE SP 20, UNE SP 30

INDOOR INSTRUMENT SINGLE POLE VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST1983



Transformer type	Dimensions (mm)														
	A	B	C	D	E	F	G	I	K	L	M	N	O	X	Y
UNE SP 10	332	200	240	200	185	132	200	25	150	260	225	175	12	ø115	410
UNE SP 20	362	230	300	245	200	147	215	25	150	290	250	200	12	ø120	560
UNE SP 30	415	250	390	290	220	175	240	25	150	350	300	225	12	ø120	730

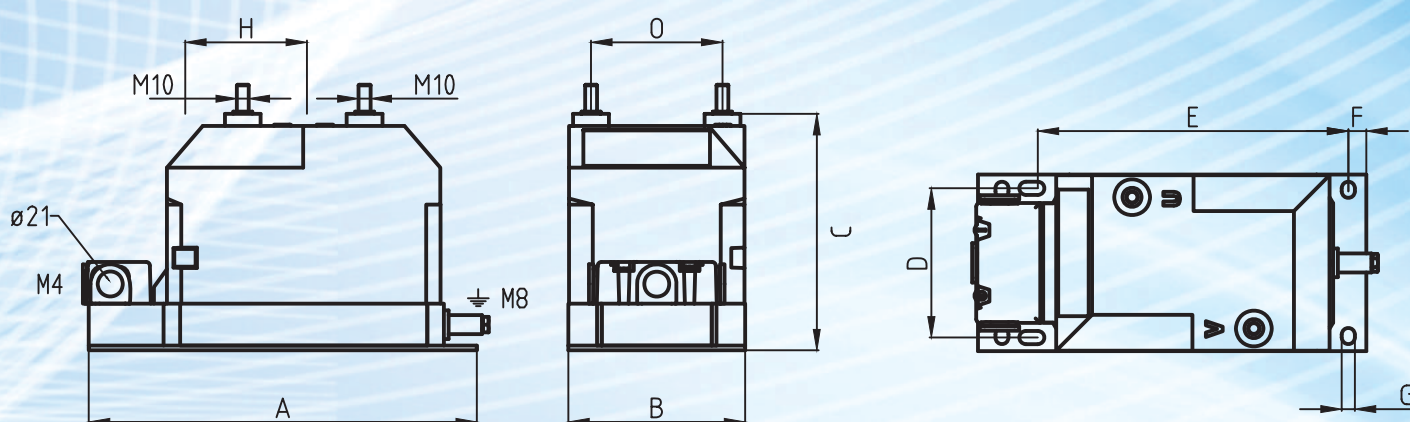
TECHNICAL DATA	UNE SP 10		UNE SP 20		UNE SP 30	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
Installation	indoor		indoor		indoor	
Insulation materijl	epoxy resin		epoxy resin		epoxy resin	
Insulation class	E		E		E	
Maximum equipment voltage (Um) (kV)	12		24		36	42
Rated withstand grip frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42	50	65	70	95
Rated withstand grid freq and V of secondary coil. (50Hz/1min) (kV)	3		3		3	
Rated lightning impulse withstand voltage	75		125		170	190
Rated primary voltage (kV)	3/√3; 6/√3; 10/√3		10/√3; 15/√3; 20/√3		20/√3; 25/√3; 30/√3; 35/√3	
Rated secondary voltage (V)	100/√3 ili 110/√3		100/√3 ili 110/√3		100/√3 ili 110/√3	
Tertiary rated voltage (V)	100/3		100/3		100/3	
Rated power (VA)	10-180		10-180		10-180	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1		0,2; 0,5; 1	
Tertiary rated power (VA)	10 - 60		10 - 60		10 - 60	
Accuracy class for protection coil	3P; 6P		3P; 6P		3P; 6P	
Borderline thermal current of the secondary coil (A)	6		8		8	
Rated frequency (Hz)	50; 60		50; 60		50; 60	
Rated voltage factor	1,9 x Un/8h		1,9 x Un/8h		1,9 x Un/8h	
Mass (kg)	36		50		69	

RZL 10, RZL 20

INDOOR DOUBLE POLE INSTRUMENT VOLTAGE TRANSFORMER



Standard
IEC 60044-2 GOST 1983



Transformer type	Dimensions (mm)								
	A	B	C	D	E	F	G	H	O
RZL 10	325	148	200	125	260	15	11	102	110
RZL 20	350	178	230	150	275	20	14	165	130

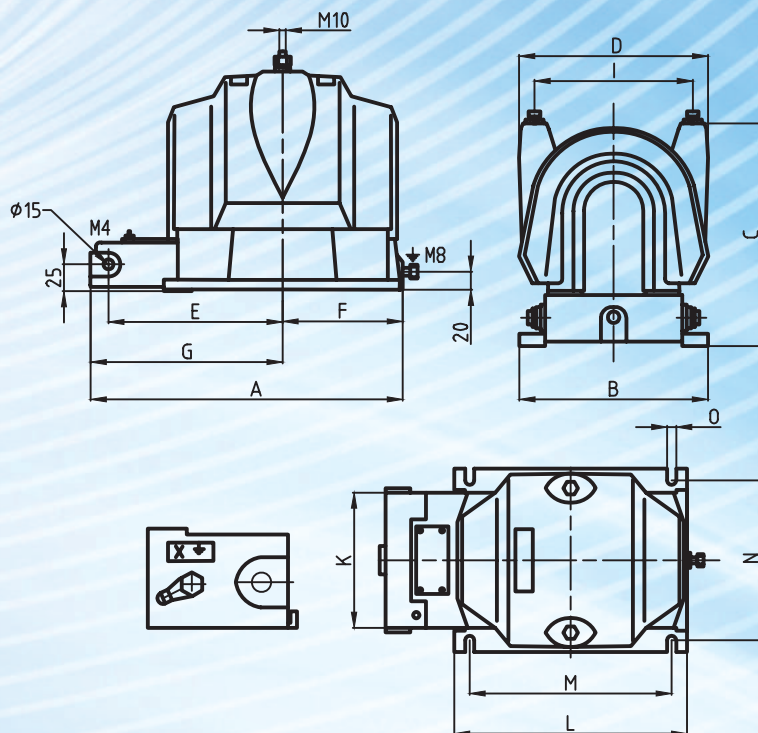
TECHNICAL DATA	RZL 10		RZL 20	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
Installation	indoor		indoor	
Insulation material	epoxy resin		epoxy resin	
Insulation class	E		E	
Maximum equipment voltage (Um) (kV)	12		24	
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42	50	65
Rated withstand grid frequency and voltage for the secondary coil j (50Hz/1min) (kV)	3		3	
Rated lightning impulse withstand voltage (kV)	75		125	
Rated primary voltage (kV)	3; 5; 6; 10		10; 15; 20	
Rated secondary voltage (V)	100		100	
Rated power (VA)	10-100		10-100	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1	
Borderline thermal current of the secondary coil (A)	4		4	
Rated frequency(Hz)	50; 60		50; 60	
Rated voltage factor	1,2 x Un / permanently		1,2 x Un /permanently	
Mass (kg)	18,5		25	



UZN 10, UZN 20, UZN 30

INDOOR DOUBLE POLE INSTRUMENT VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST1983



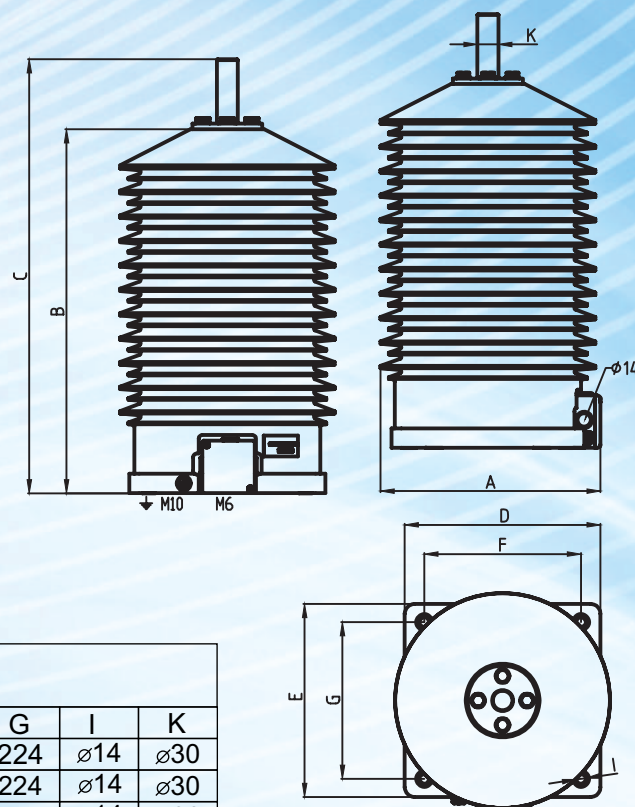
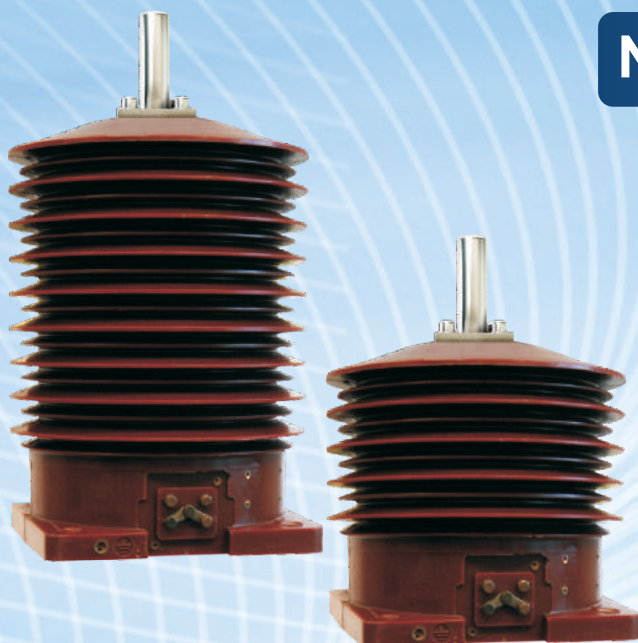
Transformer type	Dimensions (mm)												
	A	B	C	D	E	F	G	I	K	L	M	N	O
UZN 10	332	200	240	185	185	132	200	150	150	260	225	175	12
UZN 20	362	230	300	245	200	147	215	210	150	290	250	200	12
UZN 30	410	250	300	373	200	175	235	320	150	335	305	225	12

TECHNICAL DATA	UZN 10		UZN 20		UZN 30	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1986	IEC 60044-2	GOST1983
Installations	indoor		indoor		indoor	
Insulation material	epoxy resin		epoxy resin		epoxy resin	
Insulation class	E		E		E	
Maximum equipment voltage (Um) (kV)	12		24		36	42
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42	50	65	70	95
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3		3		3	
Rated lightning impulse withstand voltage (kV)	75		125		170	190
Rated primary voltage (kV)	3; 6; 10		10; 15; 20		20; 25; 30; 35	
Rated secondary voltage (V)	100; 110		100; 110		100; 110	
Rated power (VA)	10-180		10-180		10-180	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1		0,2; 0,5; 1	
Borderline thermal current of the secondary coil (A)	6		8		8	
Rated frequency t (Hz)	50; 60		50; 60		50; 60	
Rated voltage factor	1,2 x Un/ permanently		1,2 x Un/ permanently		1,2 x Un/ permanently	
Mass (kg)	25		40		62	

NTSM-12, NTSM-24, NTSM-38

OUTDOOR SINGLE POLE INSTRUMENT VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST 1983



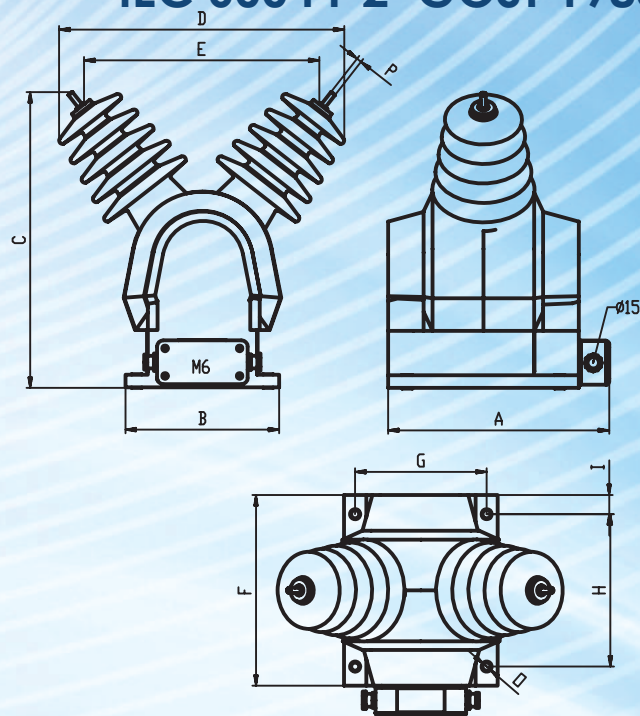
Transformer type	Dimensions (mm)								
	A	B	C	D	E	F	G	I	K
NTSM-12	315	312	410	280	276	224	224	Ø14	Ø30
NTSM-24	315	450	550	280	276	224	224	Ø14	Ø30
NTSM-38	315	520	620	280	276	224	224	Ø14	Ø30

TECHNICAL DATA	NTSM-12		NTSM-24		NTSM-38	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
Installation	outdoor		outdoor		outdoor	
Insulation material	cycloaliphatic epoxy resin		cycloaliphatic epoxy resin		cycloaliphatic epoxy resin	
Insulation class	F		F		F	
Maximum equipment voltage (Um) (Kv)	12		24		36	42
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (Kv)	28	42	50	65	70	95
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (Kv)	3		3		3	
Rated lightning impulse withstand voltage (kV)	75		125		170	190
Rated primary voltage (kV)	3/√3; 6/√3; 10/√3;		10/√3;15/√3; 20/√3		20/√3;25/√3;30/√3;35/√3	
Rated secondary voltage (V)	100/√3 ili 110/√3;		100/√3 ili 110/√3;		100/√3 ili 110/√3;	
Tertiary rated voltage (V)	100/3		100/3		100/3	
Rated power (VA)	10-180		10-180		10-180	
Accuracy class	0,2; 0,5; 1		0,2; 0,5; 1		0,2; 0,5; 1	
Rated tertiary power (VA)	10 - 60		10 - 60		10 - 60	
Accuracy class of protection coil	3P; 6P		3P; 6P		3P; 6P	
Borderline thermal current of the secondary coil (A)	6		6		6	
Rated frequency (Hz)	50; 60		50; 60		50; 60	
Rated voltage factor	1,9 x Un/8h		1,9 x Un/8h		1,9 x Un/8h	
Mass (kg)	40		58		72	

NTDSM-12

OUTDOOR DOUBLE POLE INSTRUMENT VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST 1983



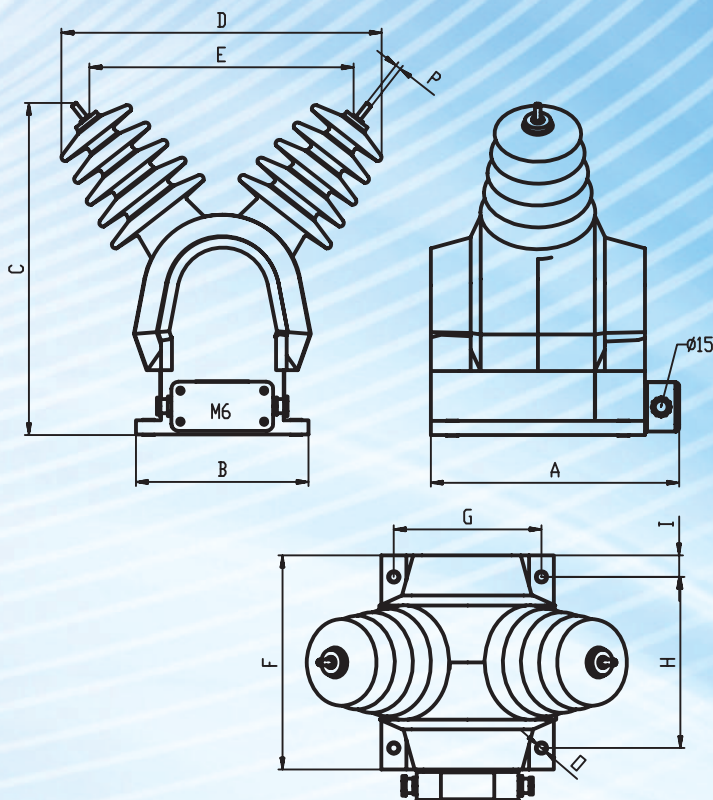
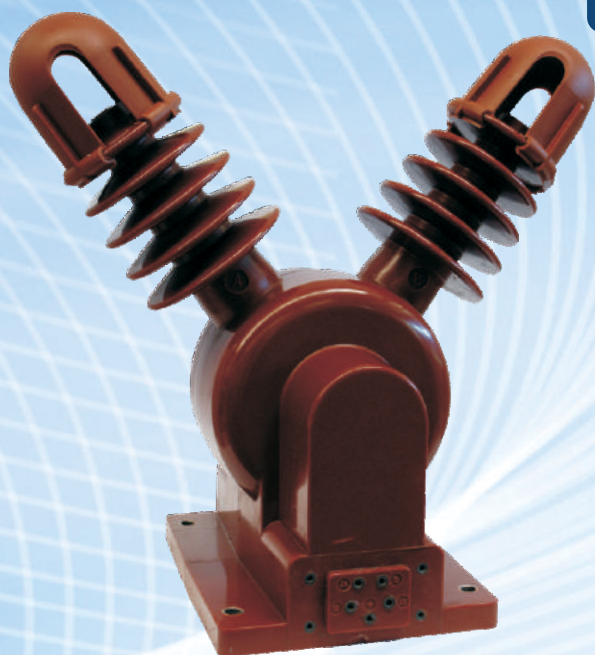
Transformer type	Dimensions (mm)										
	A	B	C	D	E	F	G	H	I	O	P
NTDSM-12	318	220	342	370	303	270	183	215	27,5	Ø13	M8

TECHNICAL DATA	NTDSM-12	
Standard	IEC 60044-2	GOST1983
Installation	outdoor	
Insulation material	cycloaliphatic epoxy resin	
Insulation class	F	
Maximum equipment voltage (Um) (kV)	12	
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	28	42
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3	
Rated lightning impulse withstand voltage (kV)	75	
Rated primary voltage (kV)	3; 6; 10	
Rated secondary voltage (V)	100; 110; 230	
Rated power (VA)	10-200	
Accuracy class	0.2; 0.5; 1; 3	
Borderline thermal current of the secondary coil (A)	6	
Rated frequency (Hz)	50; 60	
Rated voltage factor	1,2 x Un / permanently	
Mass (kg)	32	

NTDSM-24, NTDSM-38

OUTDOOR DOUBLE POLE INSTRUMENT VOLTAGE TRANSFORMER

Standard
IEC 60044-2 GOST 1983



Transformer type	Dimensions (mm)										
	A	B	C	D	E	F	G	H	I	O	P
NTDSM-24	348	242	466	449	368	300	207	240	30	Ø13	M8
NTDSM-38	423	295	595	582	503	360	260	300	30	Ø13	M8

TECHNICAL DATA	NTDSM-24		NTDSM-38	
Standard	IEC 60044-2	GOST1983	IEC 60044-2	GOST1983
installation	outdoor		outdoor	
Insulation material	cycloaliphatic epoxy resin		cycloaliphatic epoxy resin	
Insulation class	F		F	
Maximum equipment voltage (Um) (kV)	24		36	42
Rated withstand grid frequency and voltage for the primary coil (50Hz/1min) (kV)	50	65	70	95
Rated withstand grid frequency and voltage for the secondary coil (50Hz/1min) (kV)	3		3	
Rated lightning impulse withstand voltage (kV)	125		170	190
Rated primary voltage (kV)	10; 15; 20		20; 30; 35	
Rated secondary voltage (V)	100; 110; 230		100; 110; 230	
Rated power (VA)	10-200		10-200	
Accuracy class	0.2; 0.5; 1; 3		0.2; 0.5; 1; 3	
Borderline thermal current of the secondary coil (A)	8		8	
Rated frequency (Hz)	50; 60		50; 60	
Rated voltage factor	1,2 x Un /permanently		1,2 x Un / permanently	
Mass (kg)	48		70	



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