



ELIN EBG	ELIN Projekt : Kosice

Specification sheet

Schneider-product : ALBB 2000F-0503T11001

Three-phase - starter transformer

Nominal voltage : 6 000 V

Input current : 2911 / 3112 / 3316 A (rated current 3112A)

Frequency : 50 Hz + / - 1 %

Output voltage : 4620 / 4800 / 4980 V (rated voltage 4800V)

Output current : 3780 / 3889 / 3995 A (rated current 3889A)

Power : 30,25 / 32,33 / 34,46 MVA (rated power 32,33 MVA)

Short circuit voltage : approx. 2,5% / 2,0% / 1,5%

Vector group : IIIa0

Protective system : IP21

Insulation class : F

Cooling method : ANAN

Protection class : 1

Construction regulation : DIN VDE 0532 / IEC 60076

Environmental temperature : -25 to 45°C

Startings : 50 Sec.

Number of startings : 3 cold / 2 warm starting in series / 5 startings per day

Time of breaks : 30 min.

Version of core : with air gap

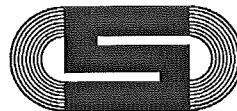
max. mounting height : 1000 m above NN

N° AFFAIRE	Format	Groupe	N°
Rev			
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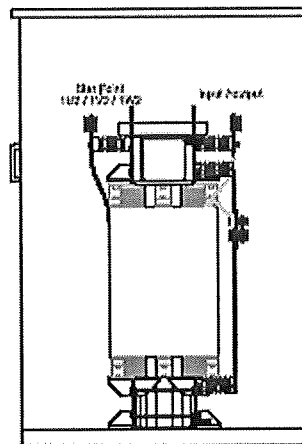
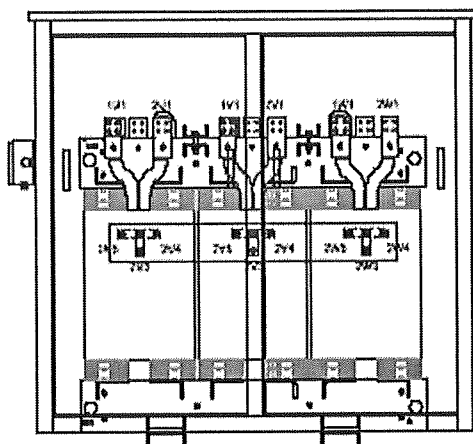
Specification sheet

N° AFFAIRE		Format	Groupe	N°
Rev				
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Rev	Date	Drawn by	revisions	check by
				appr. by





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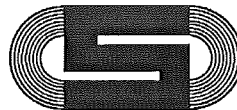


Manuál prevádzky a údržby pre transformátory štartéra

Obsah

1.	Účel použitia	Strana 2
2.	Zostavenie	Strana 2
3.	Montáž / inštalácia	Strana 2
4.	Napojenie / počiatočná prevádzka	Strana 2
5.	Značenie a typový štítok	Strana 3
6.	Balenie	Strana 3
7.	Bezpečnostné opatrenia	Strana 3
8.	Proces spustenia	Strana 3
9.	Napojenie medených tyčí	Strana 4
10.	Údržba	Strana 4
11.	Uskladnenie	Strana 4

Doplnok (voliaci napäťový prepínač)



ELIN EBG	ELIN Projekt : Košice

Úvod

Tento opis a prevádzkové pokyny pojednávajú o trojfázových auto-transformátoroch s galvanickým nedeleným vinutím v štandardnej verzii.

1. Účel použitia

- 1.1 Transformátory slúžia pre transformáciu napätia. Štandardné prevádzkové podmienky pre transformátory sú nasledovné:
- a) výška inštalácie: do 1000 m na morom
 - b) teplota vzduchu okolia: od -5°C do +45°C; napriek tomu, priemerná teplota vzduchu by nemala prevýšiť 35°C v akomkoľvek dni a 20°C v akomkoľvek roku.
- Ak je požiadavka, aby boli transformátory prevádzkované v iných okolitých podmienkach, musí tak byť vopred dohodnuté medzi zákazníkom a výrobcom.
- 1.2 Neinštalujte transformátory pri nasledovných podmienkach:
- v nebezpečnom, výbušnom alebo agresívnom priestore (obsahujúcom plyny, výpary, atd.).
 - v miestach podliehajúcim vibráciám a otasom.
- Kontaktujte nás, ak sú potrebné časté spustenia a vypojenia (viac ako určené).

2. Zostavenie:

- 2.1 Transformátor je namontovaný vnútri krytu s ochranou IP21.
- 2.2 Skriňa transformátora musí byť vždy uzemnená. Skrutky prípojky so symbolom sú umiestnené v dolnej časti skrine, kvôli jej uchyteniu. Pred uchytením platne smerom k zemi, vyčistite plochu kontaktu. Po napojení musia byť vykonané patričné merania v súlade so smernicami ako IEC/VDE atd.

3. Montáž / Inštalácia:

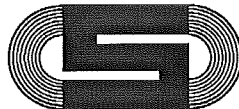
- 3.1 Transformátor musí byť namontovaný, t.j. nainštalovaný tak, aby bola zachovaná potrebná cirkulácia vzduchu pre chladenie. Prosíme, dodržujte minimálnu vzdialenosť 250 mm od susediacich strojov a jednotiek. V prípade separátnej ventilácie chladiacimi agregátmi, môže byť vzdialenosť menšia, to však za predpokladu, že maximálne povolené prehriatie transformátora nie je prekročené a, že je zabezpečená dostatočná elektrická izolácia.

4. Napojenie / počiatočná prevádzka

- 4.1 Pred napojením musia byť prekontrolované hodnoty napätia siete a kmitočtov s hodnotami uvedenými na typovom štítku, mali by súhlasiť. Indikovaná trieda teploty a okolitá teplota musia súhlasiť s miestnymi podmienkami. Napojenia musia byť realizované vhodne dimenzovaným priemerom vodiča a v súlade s označením na prepojovacích svorkách, t.j. koncové tyče alebo priložená schéma napojenia. Skrutky prípojky, ktoré nie sú použité, musia byť taktiež dotiahnuté.

Je potrebné počítať s poistkou na vstupnej strane.

- 4.2 Všetky bezpečnostné a regulačné zariadenia musia byť napojené podľa priloženej schémy obvodu.



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5. Značky a typový štítok

- 5.1 Všetky externé koncovky sú opatrené značením, na ktorom sú uvedené ich údaje.
- 5.2 Transformátory sú opatrené továrenským štítkom výrobcu a všetkými príznačnými údajmi.

6. Balenie

- 6.1 Pred balením boli všetky časti transformátora prekontrolované na koróziu a poškodenia.
- 6.2 Transformátory sú zabezpečené primeraným balením v súlade so vzdialenosťou do miesta dodania, alebo zvláštnymi požiadavkami. Izolátory a prístrojové vybavenie transformátora sú chránené voči poškodeniu spôsobeným prepravou.

7. Bezpečnostné opatrenia

- 7.1 Vybalte transformátory a pohnite činnými časťami jedine za použitia namontovaných zdvíhacích zariadení (závesné oká).
Hlavná skriňa svorkovnice musí byť odstránená, aby sa dalo pohnúť transformátorom.
- 7.2 Práce na transformátoroch môžu vykonávať len skúsení pracovníci. Pri práci na transformátoroch musí byť dodržaných „5 bezpečnostných opatrení“:
- odpojenie
 - zabezpečenie voči reštartovaniu
 - determinovať voľné napätie
 - uzemnenie, skratovanie
 - zakryť alebo vypnúť susediace časti, ktoré sú pod prúdom.

8. Proces spustenia

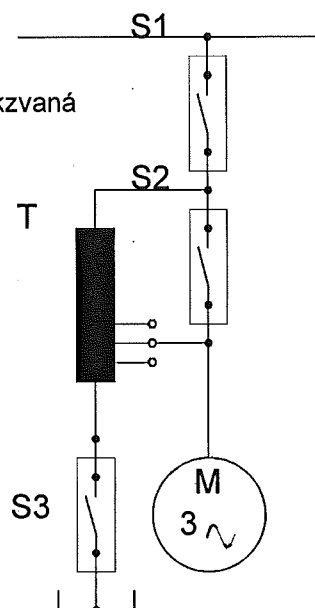
- 8.1 Metóda štartovania so zníženým napätím, ktorá musí byť použitá je takzvaná metóda trojpolohového prerušovača (Korndorfer- napojenie).

Východiskový bod: spínače S1, S2, S3 musia byť v otvorenej polohe.

Štartovací proces : bypasový spínač S2 otvorený, zatvoriť
spínač východiskového bodu S3,
zatvoriť hlavný spínač S1.

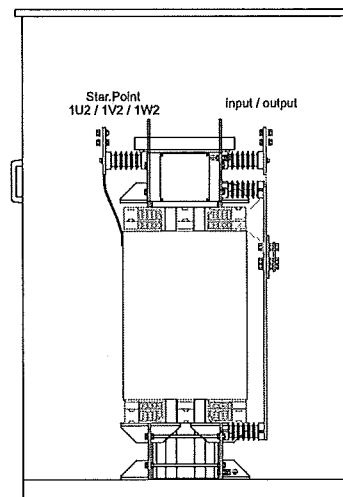
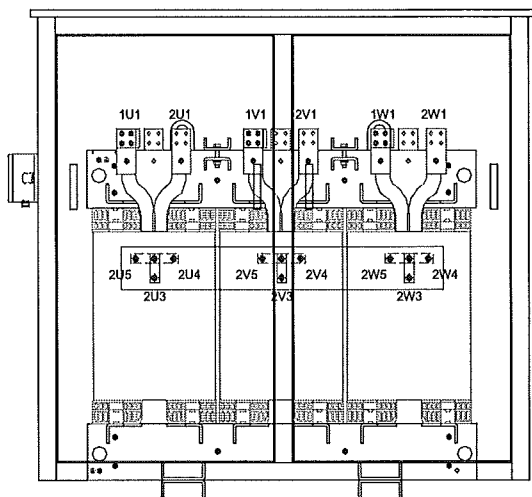
Bežný výkon : otvoriť spínač východiskového bodu S3
po nabehnutí a zatvoriť bypasový
spínač S2,

Počas doby spínania nesmie byť prerušenie pod 20ms.





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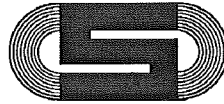


Operation- and maintenance manual of starter transformers

Contents

1.	Application purpose	Page 2
2.	Construction	Page 2
3.	Assembly / installation	Page 2
4.	Connection / start-up operation	Page 2
5.	Marking and type plate	Page 3
6.	Packing	Page 3
7.	Safety precautions	Page 3
8.	Starting procedure	Page 3
9.	Connection copper bars	Page 4
10.	Maintenance	Page 4
11.	Storage	Page 4

Appendix (voltage selector switch)



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Introduction

The present description and operating instruction deals with three-phase power autotransformers with galvanically non separated windings in standard version.

1. Application purpose

- 1.1 The transformers serve the voltage transformation. The standard operating conditions for the transformers are as follows:
- a) installation altitude: up to 1000 m above sea level
 - b) ambient air temperature: from -5°C until +45°C; however the average air temperature has not to exceed 35°C in any one day and 20°C in any one year.
- If the transformers are requested to operate in different ambient conditions this must clearly be agreed between purchaser and manufacturer.
- 1.2 Do not install the transformers under the following conditions:
- in dangerous, explosive or aggressive medium (containing gases, vapours etc).
 - in places subject to vibration and jolting.
- If often startings and cut-offs (more than specified) are necessary, please consult us.

2. Construction:

- 2.1 The transformer is mounted inside an enclosure with IP21 protection.
- 2.2 The transformer housing must be always grounded. Connection bolts with the symbol  are provided at the lower part of the housing for this attachment. Clean the contact surface of the plate before connecting towards earth. According to the regulations as IEC/VDE etc. the respective measurements must be executed after the connection.

3. Assembly / installation:

- 3.1 The transformer must be assembled, i.e. installed that way that the necessary air circulation for cooling is guaranteed. Please keep in the minimum distance of 250 mm to neighbouring machines and units. In case of separate ventilation by cooling aggregates the distance can be less, in case the max. admissible overtemperature of the transformer is not exceeded and that a sufficient electrical insulation is provided.

4. Connection / start-up operation

- 4.1 Before the connection the values of the mains voltage and frequency must be checked with the values on the type plate, if they agree. The indicated temperature class and the environmental temperature must agree with the local conditions. The connections must be done with sufficient dimensioned conductor diameter and according the marking of the connection terminals i.e. terminal bars or the enclosed connection scheme. Connection screws which are not used are to be tightened as well.

A fuse must be forseen at the input side.

- 4.2 All security- and control devices must be connected according the enclosed circuit diagram.



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5. Marking and type plate

- 5.1 All external terminals are provided with a marking on which their data is written.
- 5.2 The transformers are provided with a producer's nameplate and all characteristic data.

6. Packing

- 6.1 Prior to packing, all transformer parts have been checked on corrosion and damages.
- 6.2 The transformers are provided with an appropriate package in accordance to their destination or to special requests. The transformer insulators and instrumentation are protected against damages caused by transportation.

7. Safety precautions

- 7.1 Unpack the transformers and move the active parts using only the mounted devices for lifting (lifting lugs).
The main terminal box has to be removed in order to move the transformer.
- 7.2 Only skilled workers must do the works at the transformers. The „5 safety precautions“ have to be observed during works at the transformers:
- release
 - protect against restart
 - determine stress-free
 - earth and short-circuit
 - cover neighbouring and voltage-carrying parts

8. Starting procedure

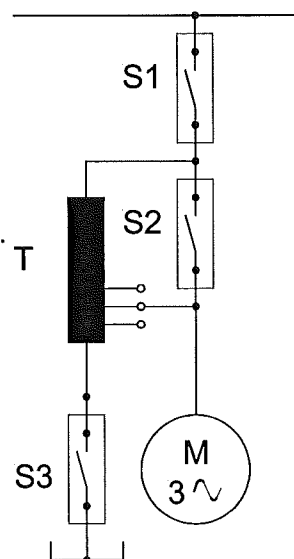
- 8.1 The starting method with reduced voltage must being used is the so-called three-circuit breaker method (Korndorfer-connection).

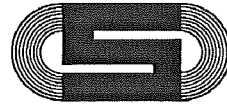
Starting point: switches S1, S2, S3 have to be in opened position.

starting process : bypass switch S2 open, close star-point switch S3, close line switch S1.

normal rating : open star-point switch S3 after run-up and close bypass switch S2,

Within switching-period there has to be a break not below 20ms.





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9. Connection copper bars with hexagon screws

On the low voltage side and high voltage side are copper bars with each hexagon screw M16 DIN 933 G8.8 foreseen. The initial torque for M16 is 160 -180Nm. Use washers and screw plug fuses for the screw connection. At the copper bars multi conducting wires by means of stamped terminals DIN 46235 can be connected. The wires/cables were led to the outside by cable glands.

10. Maintenance / service

The transformer is maintenance free, check on contamination minimum once every half year.

Works at the transformer must be effected only by trained staff.

The 5 safety rules of the electrical engineering must be observed.

- disconnect
- secure against re-switching
- determine stress-free
- earth and short to earth
- cover or shut off parts which are neighbouring and which are live.

11. Storage

- 11.1 Unpack carefully the transformer so to avoid damaging them.
- 11.2 The transformer are to be stored in a vertical position, in closed premises or under the shed protecting them against moisture.
- 11.3 Thermometers, thermometric indicators and other instruments, if not installed in the transformer, are to be stored in a dry room.

N° AFFAIRE	Format	Groupe	N°
Rev			
KOSICE 50-3023-01	A4	711	155
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Prüfprotokoll

Dreiphasen-Transformator

Firma	Elin EBG	Prod. Nr.	128767	d
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Type	ALBB 2000F-0503T11001			Vorschr.	DIN VDE 0532		
Leistung	30248 kVA	32333 kVA	34459 kVA	Frequenz	50 Hz	Baujahr	2005
Prim.Spg.	6000 V	6000 V	6000 V	Schutzart	IP00	Schaltgr.	IIIa0
Prim.Strom	2911 A	3111 A	3316 A	Einschaltdauer	2,78 %	Kühl.Art	AN
Sek.Spg.	4620 V	4800 V	4980 V	Umg.Temp.	40,0 °C	Iso.Klasse	F
Sek.Strom	3780 A	3889 A	3995 A				

WIDERSTANDSMESSUNG bei Tu 27,0 °C											
Phase	U[mV]	I[A]	R[mOhm]	Phase	U[mV]	I[A]	R[mOhm]	Phase	U[mV]	I[A]	R[mOhm]
N - 1U1	415,80	14,154	29,3769	N - 2U3	394,20	14,165	27,8292	N - 2U4	390,90	14,23	27,4798
N - 1V1	415,70	14,205	29,2650	N - 2V3	391,80	14,143	27,7028	N - 2V4	388,70	14,22	27,3424
N - 1W1	414,00	14,127	29,3056	N - 2W3	392,40	14,140	27,7511	N - 2W4	388,20	14,18	27,3804
MITTEL	415,17	14,162	29,3157	MITTEL	392,80	14,149	27,7610	MITTEL	389,27	14,21	27,4009
Phase	U[mV]	I[A]	R[mOhm]	Phase	U[V]	I[MA]	R[Ohm]	Phase	U[V]	I[MA]	R[Ohm]
N - 2U5	384,80	14,230	27,0415		-	-			-	-	
N - 2V5	382,80	14,217	26,9255		-	-			-	-	
N - 2W5	382,30	14,180	26,9605		-	-			-	-	
MITTEL	383,30	14,209	26,9759	MITTEL				MITTEL			

LEERLAUFPRÜFUNG				ÜBERSpannung 1 Minute				ISOLATIONSPRÜFUNG			
Anschluß an	6000 V	50	Hz	Anschluß an	6000 V	397,7	Hz	1 Minute	50	Hz	
1U1 - 1V1	6040,0 V	Io U	13,38 A	1U1 - 1V1	12180,0 V	Io U	2,19 A	Wicklung - Kern	20,0 kV		
1U1 - 1W1	6050,0 V	Io V	12,31 A	1U1 - 1W1	12140,0 V	Io V	2,14 A	Wicklung - Fühler	20,0 kV		
1V1 - 1W1	5910,0 V	Io W	13,24 A	1V1 - 1W1	11990,0 V	Io W	2,36 A	Fühler - Kern	1,5 kV		
Io mittel	12,98 A	Io / IN	0,45 %	MITTEL	12103,3 V	MITTEL	2,23 A	Meßwert	> 100	MOhm	
Po	10200 W										

ÜBERSETZUNGSVERHÄLTNIS											
	2U5 / 2V5 / 2W5		2U4 / 2V4 / 2W4		2U3 / 2V3 / 2W3		1U1 / 1V1 / 1W1				
Sollwert	U[1.1] = 46,45 V		U[1.2] = 48,44 V		U[1.3] = 50,43 V		U[1.4] = 60,00 V				
60,00 V	Istwert	Abwch.	Istwert	Abwch.	Istwert	Abwch.	Istwert	Abwch.	Istwert	Abwch.	Istwert
U - V	46,40 V	-0,10 %	48,40 V	-0,08 %	50,40 V	-0,06 %	60,00 V	0,00 %	-	-	-
U - W	46,60 V	0,17 %	48,50 V	-0,04 %	50,30 V	-0,43 %	60,10 V	0,00 %	-	-	-
V - W	46,60 V	0,17 %	48,40 V	-0,25 %	50,50 V	-0,03 %	60,10 V	0,00 %	-	-	-

KURZSCHLUSSMESSUNG bei Tu 27,0 °C 50 Hz											
Anschluß an 6000 V			Anschluß an 6000 V			Anschluß an 6000 V					
Kurzschluß an 4620 V			Kurzschluß an 4800 V			Kurzschluß an 4980 V					
UK	1U1 - 1V1	24,14 V	UK	1U1 - 1V1	18,80 V	UK	1U1 - 1V1	13,69 V			
	1U1 - 1W1	24,18 V		1U1 - 1W1	18,86 V		1U1 - 1W1	13,77 V			
	1V1 - 1W1	23,96 V		1V1 - 1W1	18,61 V		1V1 - 1W1	13,55 V			
	MITTEL	24,09 V		MITTEL	18,76 V		MITTEL	13,67 V			
IK	2U5	509,00 A	IK	2U4	518,00 A	IK	2U3	533,00 A			
	2V5	512,00 A		2V4	524,00 A		2V3	542,00 A			
	2W5	506,00 A		2W4	515,00 A		2W3	530,00 A			
	MITTEL	509,00 A		MITTEL	519,00 A		MITTEL	535,00 A			
Pk 4,30 kW			Pk 3,49 kW			Pk 2,80 kW					
In 2911 A			In 3111 A			In 3316 A					
kalt 27,0 °C	uk	2,296 %	kalt 27,0 °C	uk	1,874 %	kalt 27,0 °C	uk	1,412 %			
	ur	0,46 %		ur	0,388 %		ur	0,312 %			
	Pk	141 kW		Pk	125 kW		Pk	108 kW			
	P RI²	121 kW		P RI²	105 kW		P RI²	90 kW			
	Pzu	20 kW		Pzu	20 kW		Pzu	18 kW			
75,0 °C	ux	2,25 %	75,0 °C	ux	1,83 %	75,0 °C	ux	1,38 %			
	uk	2,31 %		uk	1,88 %		uk	1,42 %			
	ur	0,53 %		ur	0,44 %		ur	0,35 %			
	Pk	160 kW		Pk	142 kW		Pk	121 kW			
	P RI²	143 kW		P RI²	125 kW		P RI²	106 kW			
Pzu 17 kW			Pzu 17 kW			Pzu 15 kW					

BEMERKUNGEN											
PT 100 110,43 Ohm 110,58 Ohm 110,62 Ohm 110,52 Ohm 110,59 Ohm 110,65 Ohm											

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Geschäftsführer:
Bettina Schneider Dipl. Betriebswirt (BA)
Rolf Anli Dipl.-Wirt.-Ing. (FH)
Amtsgericht Offenburg HRB 758



Reg.-Nr. 2750



test certificate

three phase- transformer

company	Elin EBG	com. no.	128767	e
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type	ALBB 2000F-0503T11001				const. spez.	DIN VDE 0532		
power	30248 kVA	32333 kVA	34459 kVA		frequency	50 Hz	year of const.	2005
prim. volt.	6000 V	6000 V	6000 V		protec. sys.	IP00	conn. symb.	IIIa0
prim. curr.	2911 A	3111 A	3316 A		cyclic duration factor	2,78 %	cool. method	AN
sec. volt.	4620 V	4800 V	4980 V		environ.temp.	40,0 °C	insul. class	F
sec. curr.	3780 A	3889 A	3995 A					

RESISTANCE MEASUREMENT at env.temp. 27,0 °C											
phase	U[mV]	I[A]	R[mOhm]	phase	U[mV]	I[A]	R[mOhm]	phase	U[mV]	I[A]	R[mOhm]
N - 1U1	415,80	14,154	29,3769	N - 2U3	394,20	14,165	27,8292	N - 2U4	390,90	14,23	27,4798
N - 1V1	415,70	14,205	29,2650	N - 2V3	391,80	14,143	27,7028	N - 2V4	388,70	14,22	27,3424
N - 1W1	414,00	14,127	29,3056	N - 2W3	392,40	14,140	27,7511	N - 2W4	388,20	14,18	27,3804
medium	415,17	14,162	29,3157	medium	392,80	14,149	27,7610	medium	389,27	14,21	27,4009
phase	U[mV]	I[A]	R[mOhm]	phase	U[V]	I[mA]	R[Ohm]	phase	U[V]	I[mA]	R[Ohm]
N - 2U5	384,80	14,230	27,0415		-	-			-	-	
N - 2V5	382,80	14,217	26,9255		-	-			-	-	
N - 2W5	382,30	14,180	26,9605		-	-			-	-	
medium	383,30	14,209	26,9759	medium				medium			

NO LOAD TEST				OVER VOLTAGE 1 min				INSULATION TEST			
connection on	6000 V	50	Hz	connection on	6000 V	397,7	Hz	1 min	50	Hz	
1U1 - 1V1	6040,0 V	Io U	13,38 A	1U1 - 1V1	12180,0 V	Io U	2,19 A	winding - core	20,0 kV		
1U1 - 1W1	6050,0 V	Io V	12,31 A	1U1 - 1W1	12140,0 V	Io V	2,14 A	winding - sensor	20,0 kV		
1V1 - 1W1	5910,0 V	Io W	13,24 A	1V1 - 1W1	11990,0 V	Io W	2,36 A	sensor - core	1,5 kV		
Io medium	12,98 A	Io / IN	0,45 %	medium	12103,3 V	medium	2,23 A	measured value	> 100 MOhm		
Po	10200 W										

TRANSFORMATION RATIO											
	2U5 / 2V5 / 2W5		2U4 / 2V4 / 2W4		2U3 / 2V3 / 2W3		1U1 / 1V1 / 1W1				
rated value	U[1.1] = 46,45 V		U[1.2] = 48,44 V		U[1.3] = 50,43 V		U[1.4] = 60,00 V				
60,00 V	act. value	deviation	act. value	deviation	act. value	deviation	act. value	deviation	act. value	deviation	act. value
U - V	46,40 V	-0,10 %	48,40 V	-0,08 %	50,40 V	-0,06 %	60,00 V	0,00 %	-	-	-
U - W	46,60 V	0,17 %	48,50 V	-0,04 %	50,30 V	-0,43 %	60,10 V	0,00 %	-	-	-
V - W	46,60 V	0,17 %	48,40 V	-0,25 %	50,50 V	-0,03 %	60,10 V	0,00 %	-	-	-

SHORT CIRCUIT MEASUREMENT at env.temp. 27,0 °C 50 Hz											
connection on	6000 V			connection on	6000 V			connection on	6000 V		
outp. short circuit	4620 V			outp. short circuit	4800 V			outp. short circuit	4980 V		
UK	1U1 - 1V1	24,14 V		UK	1U1 - 1V1	18,80 V		UK	1U1 - 1V1	13,69 V	
	1U1 - 1W1	24,18 V			1U1 - 1W1	18,86 V			1U1 - 1W1	13,77 V	
	1V1 - 1W1	23,96 V			1V1 - 1W1	18,61 V			1V1 - 1W1	13,55 V	
	medium	24,09 V			medium	18,76 V			medium	13,67 V	
IK	2U5	509,00 A		IK	2U4	518,00 A		IK	2U3	533,00 A	
	2V5	512,00 A			2V4	524,00 A			2V3	542,00 A	
	2W5	506,00 A			2W4	515,00 A			2W3	530,00 A	
	medium	509,00 A			medium	519,00 A			medium	535,00 A	
	Pk	4,30 kW			Pk	3,49 kW			Pk	2,80 kW	
	In	2911 A			In	3111 A			In	3316 A	
cold 27,0 °C	uk	2,296 %		cold 27,0 °C	uk	1,874 %		cold 27,0 °C	uk	1,412 %	
	ur	0,46 %			ur	0,388 %			ur	0,312 %	
	Pk	141 kW			Pk	125 kW			Pk	108 kW	
	P RI²	121 kW			P RI²	105 kW			P RI²	90 kW	
	Pzu	20 kW			Pzu	20 kW			Pzu	18 kW	
	ux	2,25 %			ux	1,83 %			ux	1,38 %	
75,0 °C	uk	2,31 %		75,0 °C	uk	1,88 %		75,0 °C	uk	1,42 %	
	ur	0,53 %			ur	0,44 %			ur	0,35 %	
	Pk	160 kW			Pk	142 kW			Pk	121 kW	
	P RI²	143 kW			P RI²	125 kW			P RI²	106 kW	
	Pzu	17 kW			Pzu	17 kW			Pzu	15 kW	

REMARKS											
PT 100 110,43 Ohm 110,58 Ohm 110,62 Ohm 110,52 Ohm 110,59 Ohm 110,65 Ohm											

tester	K.Wörner	date	27.06.2005	O1017	J:\IS\Projekte\ALBB\ALBB_2000F-0503T11001_Koska_ELN
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Geschäftsführer:
Betina Schneider Dipl. Betriebswirt (BA)
Rolf Anti Dipl.-Wirt.-Ing. (FH)
Amtsgericht Offenburg HRB 758



Reg.-Nr. 2750



test certificate

three phase - transformer

company	Elin EBG	com. no.	128767
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type	ALBB 2000F-0503T11001			const. spez.	DIN VDE 0532		
power	30248 kVA	32333 kVA	34459 kVA	frequency	50 Hz	year of const.	2005
prim. volt.	6000 V	6000 V	6000 V	protec. sys.	IP00	conn. symb.	IIIa0
prim. curr.	2911 A	3111 A	3316 A	cyclic duration factor	2,78 %	cool. method	AN
sec. volt.	4620 V	4800 V	4980 V	environ. temp.	45,0 °C	insul. class	F
sec. curr.	3780 A	3889 A	3995 A				

RESISTANCE MEASUREMENT at env. temp. 27,0 °C											
phase	U[mV]	I[A]	R[mOhm]	phase	U[mV]	I[A]	R[mOhm]	phase	U[mV]	I[A]	R[mOhm]
N - 1U1	415,80	14,154	29,3769	N - 2U3	394,20	14,165	27,8292	N - 2U4	390,90	14,23	27,4798
N - 1V1	415,70	14,205	29,2650	N - 2V3	391,80	14,143	27,7028	N - 2V4	388,70	14,22	27,3424
N - 1W1	414,00	14,127	29,3056	N - 2W3	392,40	14,140	27,7511	N - 2W4	388,20	14,18	27,3804
medium	415,17	14,162	29,3157	medium	392,80	14,149	27,7610	medium	389,27	14,21	27,4009
phase	U[mV]	I[A]	R[mOhm]	phase	U[V]	I[A]	R[Ohm]	phase	U[V]	I[A]	R[Ohm]
N - 2U5	384,80	14,230	27,0415		-	-			-	-	
N - 2V5	382,80	14,217	26,9255		-	-			-	-	
N - 2W5	382,30	14,180	26,9605		-	-			-	-	
medium	383,30	14,209	26,9759	medium				medium			

NO LOAD TEST				OVER VOLTAGE 1 min				INSULATION TEST			
connection on	6000 V	50 Hz		connection on	6000 V	397,7 Hz		1 min	50 Hz		
1U1 - 1V1	6040,0 V	Io U	13,38 A	1U1 - 1V1	12180,0 V	Io U	2,19 A	winding - core	20,0 kV		
1U1 - 1W1	6050,0 V	Io V	12,31 A	1U1 - 1W1	12140,0 V	Io V	2,14 A	winding - sensor	20,0 kV		
1V1 - 1W1	5910,0 V	Io W	13,24 A	1V1 - 1W1	11990,0 V	Io W	2,36 A	sensor - core	1,5 kV		
Io medium	12,98 A	Io / IN	0,45 %	medium	12103,3 V	medium	2,23 A	measured value	> 100 MOhm		
Po	10200 W										

TRANSFORMATION RATIO											
	2U5 / 2V5 / 2W5		2U4 / 2V4 / 2W4		2U3 / 2V3 / 2W3		1U1 / 1V1 / 1W1				
rated value	U[1.1] = 46,45 V		U[1.2] = 48,44 V		U[1.3] = 50,43 V		U[1.4] = 60,00 V				
60,00 V	act. value	deviation	act. value	deviation	act. value	deviation	act. value	deviation	act. value	deviation	act. value
U - V	46,40 V	-0,10 %	48,40 V	-0,08 %	50,40 V	-0,08 %	60,00 V	0,00 %	-	-	-
U - W	46,60 V	0,17 %	48,50 V	-0,04 %	50,30 V	-0,43 %	60,10 V	0,00 %	-	-	-
V - W	46,60 V	0,17 %	48,40 V	-0,25 %	50,60 V	-0,03 %	60,10 V	0,00 %	-	-	-

SHORT CIRCUIT MEASUREMENT at env. temp. 27,0 °C 50 Hz											
connection on	6000 V		connection on	6000 V		connection on	6000 V				
outp. short circuit	4620 V		outp. short circuit	4800 V		outp. short circuit	4980 V				
UK	1U1 - 1V1	24,14 V	UK	1U1 - 1V1	18,80 V	UK	1U1 - 1V1	13,69 V			
	1U1 - 1W1	24,18 V		1U1 - 1W1	18,86 V		1U1 - 1W1	13,77 V			
	1V1 - 1W1	23,96 V		1V1 - 1W1	18,61 V		1V1 - 1W1	13,55 V			
	medium	24,09 V		medium	18,76 V		medium	13,67 V			
IK	2U5	509,00 A	IK	2U4	518,00 A	IK	2U3	533,00 A			
	2V5	512,00 A		2V4	524,00 A		2V3	542,00 A			
	2W5	506,00 A		2W4	515,00 A		2W3	530,00 A			
	medium	509,00 A		medium	519,00 A		medium	535,00 A			
	Pk	4,30 kW		Pk	3,49 kW		Pk	2,80 kW			
In	2911 A		In	3111 A		In	3316 A				
cold	uk	2,296 %	cold	uk	1,874 %	cold	uk	1,412 %			
27,0 °C	ur	0,46 %	27,0 °C	ur	0,388 %	27,0 °C	ur	0,312 %			
	Pk	141 kW		Pk	125 kW		Pk	108 kW			
	P RI²	121 kW		P RI²	105 kW		P RI²	90 kW			
	Pzu	20 kW		Pzu	20 kW		Pzu	18 kW			
	ux	2,25 %		ux	1,83 %		ux	1,38 %			
75,0 °C	uk	2,31 %	75,0 °C	uk	1,88 %	75,0 °C	uk	1,42 %			
	ur	0,53 %		ur	0,44 %		ur	0,35 %			
	Pk	160 kW		Pk	142 kW		Pk	121 kW			
	P RI²	143 kW		P RI²	125 kW		P RI²	106 kW			
	Pzu	17 kW		Pzu	17 kW		Pzu	16 kW			

REMARKS

PT 100 110,43 Ohm 110,58 Ohm 110,62 Ohm 110,52 Ohm 110,59 Ohm 110,65 Ohm

tester	K. Wörner	date	27.06.2005	O1017	C:\Dokumente und Einstellungen\Elipse\Desktop
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Amtsgericht Offenburg HRB 758



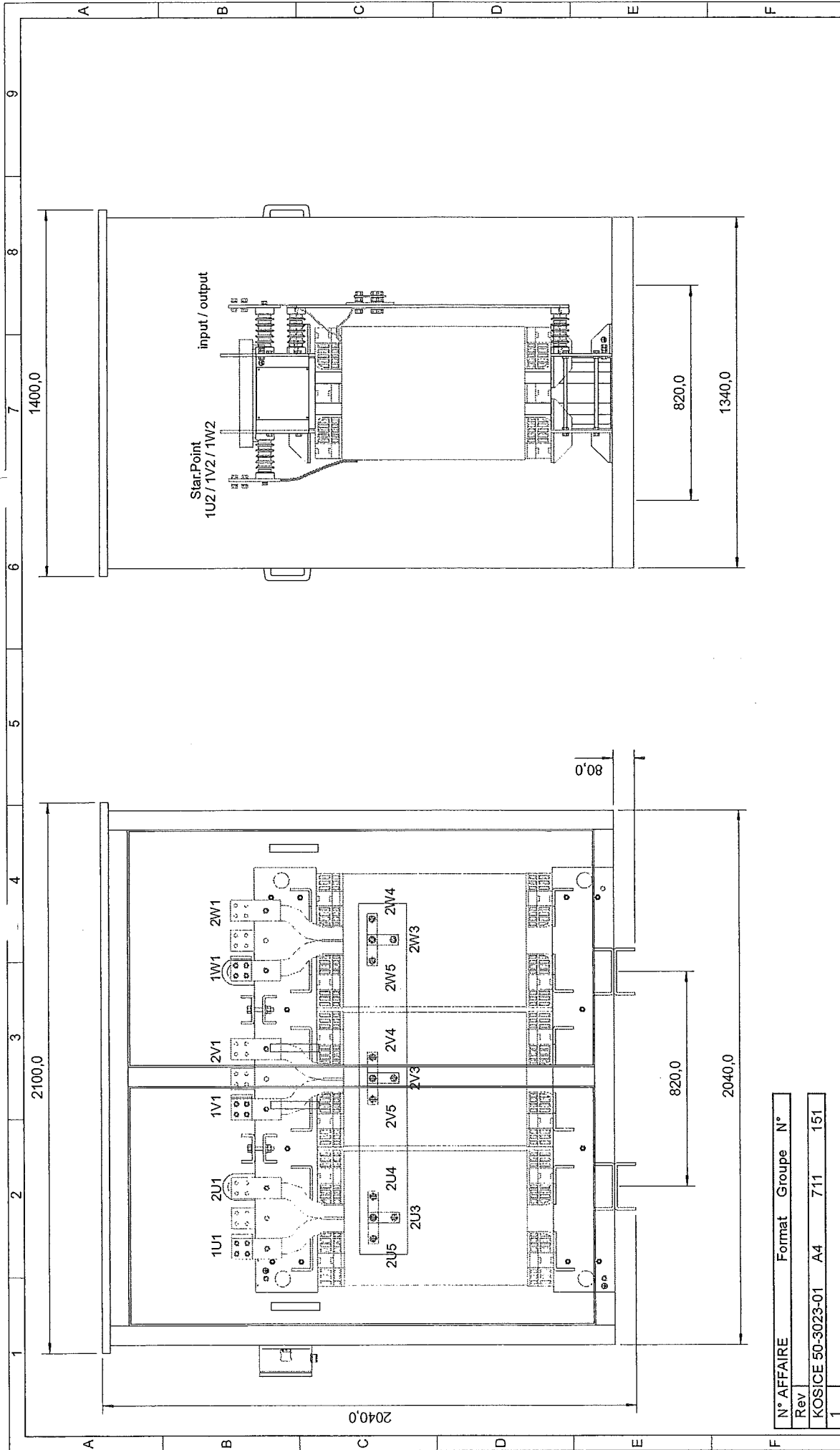
Reg.-Nr. 2750

Tests witnessed by Al

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Fa. Schneider

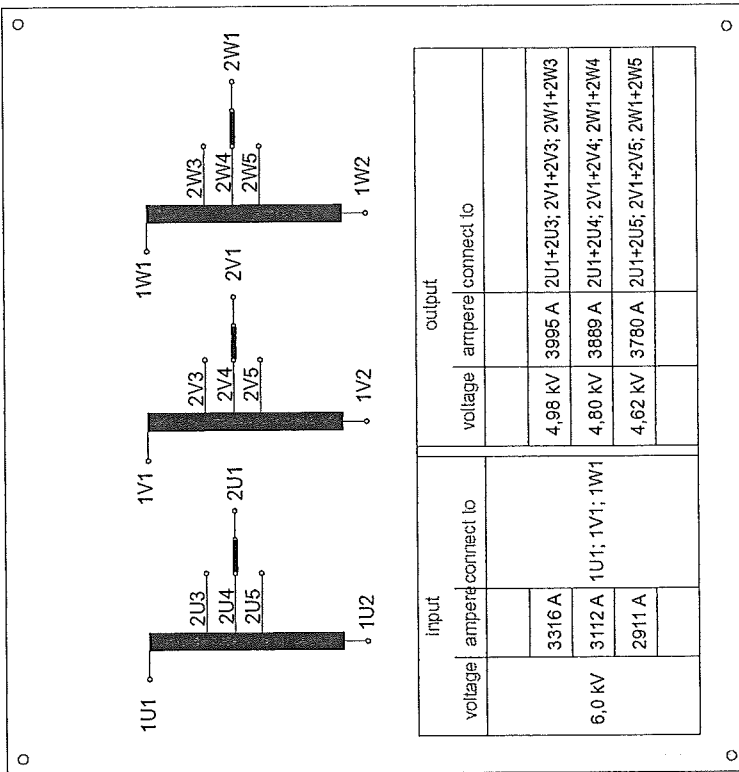
H. Schneider



N° AFFAIRE	Format	Groupe	N°
Rev			
KOSICE 50-3023-01	A4	711	151
1			


Technische Änderungen vorbehalten Toleranz nach DIN ISO2768T1-m Schnittkanlen entgraten nach DIN ISO 13715 (0 bis -0,3mm)		Maßstab 1 = 20	Gültig für: ALBB 2000F-0503T11001	<div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div>	Artikel-Nummer: -		FG
Die den Maßangaben nachgestellten Buchstaben enthalten Informationen für unsere Qualitätssicherung					DIN A4		
Projekt: Dimension sheet (ASU Kosice)				Kunde: ELIN EBG	Bl. 1		
Zeichn. Nr.: 0503T11Z01 - 050405				Client:	sh.		
Drawing No.:				Geänd. A.Demuth	V. 2		
J.Schneider Elektrotechnik GmbH 77652 Offenburg eMail: info@f-schneider.de www.f-schneider.de				Datum 05.04.2005	of		
				Gepr. A.Demuth	sh.		
				Datum 23.02.2005	Bl. 1		
				Datum 05.04.2005	V. 2		
				Datum 05.04.2005	of		


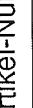
Type:	ALBB 2000F-0503T11001	No.:	
Build Year:	2005	Phases:	3
Protecting class:	IP21	Insul. class:	F
Type of duty:	AT	environmental temp.:	40°C
Cooling class:	ANAN	build at	DIN VDE 0532 / IEC 60076
Starting time	50 sec		
Startings direct in turns per hour	3 cold / 2 warm	Break time past start 3 cold or 2 warm	30 min
Power:	SD= 30,25 - 34,46 MVA	Frequency:	50 Hz
Pri. Voltage:	6 000 V	Pri. current:	2911 / 3112 / 3316 A
Sec. Voltage:	4620 / 4800 / 4980 V	Sec. current:	3780 / 3889 / 3995 A
Vector group:	IIla0	short-circuit volt.:	%
total weight:	4800 kg	Oil weight:	-



		input		output	
voltage	ampere	connect lo	voltage	ampere	connect to
6,0 kV	3316 A		4,98 kV	3995 A	2U1+2U3; 2V1+2V3; 2W1+2W3
	3112 A	1U1; 1V1; 1W1	4,80 kV	3889 A	2U1+2U4; 2V1+2V4; 2W1+2W4
	2911 A		4,62 kV	3780 A	2U1+2U5; 2V1+2V5; 2W1+2W5

					N° AFFAIRE	Format	Groupe	N°
					Rev			
					KOSICE 50-3023-01	A4	711	154
					0			
Rev.	Date	Drawn by	revisions	check by	appr. by			

 <p> J. Schneider Elektrotechnik GmbH 77652 Offenburg eMail: info@schneider.de www.j-schneider.de </p>	Projekt: name plate (ASU Kosice) <small>Project:</small>		Zeichn. Nr.: 0503T11Z03 - 050405 <small>Drawing No.:</small>
	Technische Änderungen vorbehalten Toleranz nach DIN ISO2768T-1m Schmittkanten entgraten nach DIN ISO 13715 (0 bis -0,3mm)	Maßstab 1 = 1,5 Gültig für: Material: - Oberfläche: -	

	Artikel-Nummer: -		FG
	 Die den Maßangaben nachgestellten Buchstaben enthalten Informationen für unsere Qualitätssicherung		DIN A4
Kunde: ELIN EBG <small>Client:</small>	Geänd. -	Bear. Th.Maennel	Bl. 1
	Datum -	Datum 23.02.2005	sh.
Korn.Nr.: - <small>Com.No.:</small>	Geänd. -	Gepr. A.Demuth	Bl. 1
	Datum -	Datum 05.04.2005	v. of sh.