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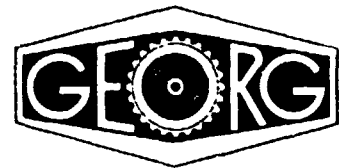
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**HEINRICH GEORG GMBH
MASCHINENFABRIK**

Final Report No. 3251-2-92

Contract No. 92/094 dated 31.07.1992

UNIDO Purchase Order Nos.: 15-2-2094H, 2147H, 2148H

UNIDO Project Nos.: DP/DRK/86/004, US/DRK/89/248, UT/DRK/89/248

Activity Code: J13313

Seller' Ref.: Kom-Nr. 3251-2-92

Provision of services and supply of equipment, machinery and parts related to the modernization of a plant for transformer production in the Democratic People's Republic of Korea

Manufacture:

According to Paragraph 2.18 a) of the Contract a „Progress Report“ had to be submitted elaborating on the status of manufacture of the equipment. The „Progress Report“ was submitted to UNIDO on 22nd December 1992 (Attachment 1).

Pre-Acceptance Test:

According to Paragraph 2.03 of the Contract a delegation of UNIDO visited the Contractor's plant from 26th to 29th April 1993 in order to carry out the Pre-Acceptance Test. The machine was found o.k. and released for shipment. A protocol was made signed by representatives of UNIDO, THMC and the Contractor (Attachment 2).

Shipment:

According to Paragraph 2.01 c) of the Contract the Transversal Cutting Machine including drawings, part lists and working instructions was shipped CIF Nampo Port on Vessel „Rickmers Shanghai“ departing Hamburg on 02.06.1993. While the three wooden cases where transshipped at Hong Kong Port Case No. 3/3 was damaged and had to be returned to Germany for repair of the decoiler and replacement of the documentation.

Cases No. 1/3 and 2/3 were shipped from Hong Kong to Nampo Port on Vessel „Taesung 923“ on 27.08.1993 whereas Case No. 3/3 was reshipped from Bremen to Hong Kong on Vessel „Regine Maersk“ on 12.11.1993 and then from Hong Kong to Nampo Port on Vessel „Taesung 923“ on 11.01.1994.



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In addition to the supply of mechanical and electrical documentation for the Transversal Cutting Machine GEORG have supplied technical and technological know-how, drawings and manufacturing instructions in English language for manufacturing of cores of oil-immersed electrical transformers of 630 KVA as per Paragraph 2.01 a) of the contract. Contents of the shipment of the equipment was specified in the Contractor's „Equipment Delivery Report and Packing List“ (Attachment 3).

Erection and Commissioning:

Two engineers of GEORG Products Service Centre, Beijing, were sent to DPRK for installation and commissioning of the Transversal Cutting Machine at THMC site. Additionally they have trained the THMC personnel on experimental cutting of transformer plates as well as provided on-the-job training of installation, operation, maintenance and repair of the Transversal Cutting Machine itself as per Paragraph 2.01 b) of the contract. After final acceptance a „Certificate of Acceptance“ was issued signed by representatives of THMC and GEORG Products Service Centre, Beijing (Attachment 4).

Kreuztal, 20.09.1994 - VK 1 Ls

**HEINRICH GEORG GMBH
MASCHINENFABRIK**

Attachments 1 - 4

Attachment 1 - 4
Date: 20.09.1994
VK 1 Ls
Heinrich Georg GmbH
Kreuztal

Name: [unclear]
Address: [unclear]
Date: [unclear]
Signature: [unclear]

Attachment 1 - 4
Date: 20.09.1994
VK 1 Ls
Heinrich Georg GmbH
Kreuztal

Attachment 1 - 4
Date: 20.09.1994
VK 1 Ls
Heinrich Georg GmbH
Kreuztal

Monat	Month	1		2		3		4		5		6		7		8		9		10		11		12	
Woche	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mechanische Konstr.	Mechanical Design																								
Elektrische Konstr.	Electrical Design																								
Mechanische Fertigung	Mechanical Build																								
Vormontage	Pre-assembly																								
Anlagenmontage	Line Erection																								
Hydraulische Montage	Hydraulic Erection																								
Pneumatische Montage	Pneumatic Erection																								
Elektro-Montage	Electrical Erection																								
Schaltschrank-Montage	Control Build																								
Inbetriebnahme	Test Run																								
Versand	Dispatch and Delivery																								
Montagebeginn	Erection Begin																								
Band auf Anlage	Strip in Line																								

Zeitplan Time Schedule

KOM 3257-2

TBA NL 400



HEINRICH GEORG GMBH
MASCHINENFABRIK

22.12.92



**HEINRICH GEORG GMBH
MASCHINENFABRIK**

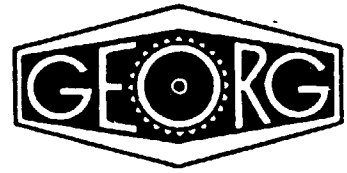
P R O T O C O L

UNIDO CONTRACT No. 92/094
Projects No. DP/DRK/86/004
US/DRK/89/248
UT/DRK/89/248
Activity Code J13313

GEORG Works Ref. No. 3251-2-92
1 GEORG TBA/ML 400 x 2000 line with CNC/85 Control

- 1) According to para 2.03 of a.m. contract (testing of equipment before shipment) the delegation from UNIDO, namely
- Mr. Victor Shatravko (UNIDO Vienna)
 - Mr. Li Song Ho (UNDP Pyongyang)
 - Mr. Li Hyong U (TAEAN Heavy Machinery Complex)
- visited the contractor's plant at D-5910 Kreuztal from 26th to 29th April 1993.
- a) It was confirmed that the equipment and machinery is in accordance with the contract documents.
 - b) Laminations according to attached drwg. No.3-32182 have been cut of strip widths of 265 mm in lengths between 500 to 1000 mm. Length accuracy, burr height and angle accuracy were according to contract specification.
 - c) Operation of line was demonstrated and explained by contractor's engineers.
 - d) For final test at Taeon site GEORG attaches 3 coils of grain oriented silicon steel free of charge; coil widths 265 mm, 80 mm and 40 mm.
- 2) Spare parts, special maintenance tools and consumable materials according to para 2.04 of contract have been discussed and will be included in our shipment.
The technical documents as per para 2.04 and 2.01 will be attached to the machine.

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- 3) Specialists for installation, testing, commissioning and initial operation at the plant site will be delegated by the contractor through his

East Asia GEORG Service Centre
No. 36, Xinjiekou Wai Street
Beijing, P.R.China

General manager : Mr. Li Deji

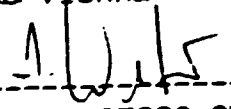
Phone: 00861-201 1874
Tlx: 222238 cegoc cn
Fax: 00861-201 3027

In case the enduser requests longer training and instruction beyond the contract, such arrangements should be made between the enduser and the Service Centre directly. Payment for this will be in Chinese currency.

- 4) The machine has been released for shipment by the Buyer and Enduser. The goods will be packed and shipped according to para 2.05 and will leave European harbour with next available sailing to Nampo/DPRK.
- 5) As the delegates from DPRK had to return immediately after successful test-run, GEORG assisted in buying tickets on next LH flight. UNIDO will reimburse the contractor for the 2 tickets.
- 6) List of spareparts, special maintenance tools and consumables is attached to this protocol.



for UNIDO Vienna



for HEINRICH GEORG GMBH



for TAEAN HEAVY MACHINERY
COMPLEX

Kreuztal, 29th April 1993/WE

Ersatzteilliste/Spare Parts List

Blatt Nr./Sheet No.: 1

KOM/Our works no.:

3251-2-92

ET 29 912

Datum/Date: April 93

Firma/Messrs:

UNIDO, Wien / Österreich (THMC/Nordkorea)

Typ:

TBA/MI 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Stück Price / Pcs.	Gesamt Preis Total Price
		<u>Doppelspreizhaspel</u> <u>Double decoiler</u> <u>Zeichnung/drawing no. A-5746</u> <u>Stückliste/part list no. 9688</u>				
2.	2	Satz=4 Stück Bremsklotz zur MRB 115.000.001	Set=4 pcs. Braking pad for MRB 115.000.001	Teil/part no. 10 775	69,50	139,00
3.	1	Membrane zur MRB 115.000.001	Diaphragm for MRB 115.000.001	Teil/part no. 10 240	100,50	100,50
		<u>Führung vor dem Vorschub</u> <u>Guidance in front of feed unit</u> <u>Zeichnung/drawing no. 2-17 725</u> <u>Stückliste/part list no. 14 570</u>				
4.	2	Rollenleiste	Roller bar	Zg/drwg. 3-41 032	703,00	1.406,00
5.	6	Kugellagerbolzen	Ball bearing bolt	Zg/drwg. 4-15 322	5,30	31,80
6.	6	Rillenkugellager	Groove ball bearing	608-2 Z	9,40	56,40
					Summe: Total:	1.733,70

Ersatzteilliste / Spare Parts List

Blatt Nr. / Sheet No.: 2

Datum / Date: April 93

KOM/Our works no.: 3251-2-92 ET 29 912
 Firma/Messrs: UNIDO, Wien / Österreich (THMC/Nordkorea)
 Typ: TBA/HL 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
		<u>Vorschub- und Meßrollenaggregat</u> <u>Feed and measuring roll unit</u> <u>Zeichnung/drawing no. 0-7623</u> <u>Stückliste/part list no. 14 564</u>				
7.	1	Treibrolle	Drive roll	Zg/drwg. 3-41 005	1.007,00	1.007,00
8.	1	Meßrolle	Measuring roll	Zg/drwg. D-30 217	1.374,00	1.374,00
10.	1	Satz Dichtungen zum PN-Zylinder RM 8080	Set of seals for PN-cylinder RM 8080	Best/order no. QM/8080/00	64,50	64,50
		<u>PN-V-Stanze</u> <u>PN-V-punching unit</u> <u>Zeichnung/drawing no. A-5733</u> <u>Stückliste/part list no. 9630</u>				
12.	1	Satz Dichtungen zum Drehzylinder DSO-P-80/350-P-29811	Set of seals for Rotating cylinder DSO-P-80/350-P-29811	80 DSO RAD P Art.-Nr. 967 003	86,50	86,50
13.	1	Simplaflex-Kupplung	Simplaflex coupling	Zg/drwg. 4-41 357 14.301.35.1.1 Bg. Ø30 H7:	1.120,00	1.120,00
Summe:						
Total:						3.652,00

Ersatzteilliste/Spare Parts List

Blatt Nr./Sheet No.: 3.

Datum/Date: April 93

KOM/Our works no.:

3251-2-92

ET 29 912

Firma/Messrs:

UNIDO, Wien / Österreich (THMC/Nordkorea)

Typ:

TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
		<u>Führung im Stanzaggregat</u> <u>Guidance - Punching unit</u>				
		<u>Zeichnung/drawing no. 0-6870</u>				
		<u>Stückliste/part list no. 11 441</u>				
14.	24	Kugellagerbolzen	Ball bearing bolt	Zg/drwg. E-15 322	5,30	127,20
15.	24	Rillenkugellager	Groove ball bearing	608-2 Z	9,40	225,60
		<u>Hubführung</u> <u>Lifting guide</u>				
		<u>Zeichnung/drawing no. 0-6905</u>				
		<u>Stückliste/part list no. 11 443</u>				
16.	4	Kugellagerbolzen	Ball bearing bolt	Zg/drwg. E-15 322	5,30	21,20
17.	4	Rillenkugellager	Groove ball bearing	608-2 Z	9,40	37,60
18.	1	O-Ring	O-ring	Ø 19,2 x 3	4,40	4,40
19.	1	O-Ring	O-ring	Ø 34,2 x 3	4,80	4,80
20.	1	O-Ring	O-ring	Ø 40 x 2	4,80	4,80
Summe:						
Total:						425,60

Ersatzteilliste / Spare Parts List

Blatt Nr. / Sheet No.: 4

KOM/Our works no.:

3251-2-92

ET 29 912

Datum/Date: April 93

Firma/Messrs:

UNIDO, Wien / Österreich (THMC/Nordkorea)

Typ

TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
<u>Führung vor der PN-Schere</u> <u>Guidance in front of PN-shear</u> <u>Zeichnung/drawing no. 0-6905</u> <u>Stückliste/part list no. II 442</u>						
21.	16	Kugellagerbolzen	Ball bearing bolt	Zg/drwg. E-15 322	5,30	84,80
22.	16	Rillenkugellager	Groove ball bearing	608-2 Z	9,40	150,40
<u>PN-Schere</u> <u>PN-Shear</u> <u>Zeichnung/drawing no. 0-6845</u> <u>Stückliste/part list no. II 342</u>						
24.	1	Satz Dichtungen zum PN-Zylinder SM 960	Set of seals for Pn-cylinder SM 960	Best/order no. QM/960/00	69,50	69,50
25.	2	Dämpfungsring	Damping ring	Ø 135/90 x 12	18,30	36,60
					Summe: Total:	341,30

Ersatzteilliste/Spare Parts List

Blatt Nr./Sheet No.:

Datum/Date: April 93

KOM/Our works no.:

3251-2-92

ET 29 912

Firma/Messis:

UNIDO, Wien / Österreich (THMC/Nordkorea)

Typ:

TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Price / Stück Part Set	Gesamt Preis Total Price
		<u>PN-Scherenschwenkung</u> <u>PN-swing of shear</u> <u>Zeichnung/drawing no. 0-6847</u> <u>Stückliste/part list no. 11 351</u>				
27.	1	Satz Dichtungen zum Drehzylinder DSO-P-160/P-46928	Set of seals for rotating cylinder DSO-P-160/P-46928	160 DSO RAD 0 Art.Nr. 967 006	359,00	359,00
29.	1	Satz Dichtungen zum PN-Zylinder RM 8063B	Set of seals for PN-cylinder RM 8063B	Best/order no. QM/8063/00	54,50	54,50
		<u>Transportband</u> <u>Conveyor belt</u> <u>Zeichnung/drawing no. 1-10 427</u> <u>Stückliste/part list no. 11 428</u>				
30.	1	Zahnkranz zur ROTEX-Kupplung 24/28	Rim of the gear for ROTEX-coupling 24/28	Teil/part no. 02024 100 0001	7,90	7,90
31.	2	Transportband	Conveyor belt	GT 10 Breite/Width: 80 mm Länge/Length: 1800 mm	121,00	242,00
					Summe: Total:	663,40

Ersatzteilliste/Spare Parts List

Blatt Nr./Sheet No.: 6

KOM/Our works no.:

3251-2-92

ET 29 912

Datum/Date: April 93

Firma/Messrs:

UNIDO, Wien / Österreich (THMC/Nordkorea)

Typ:

TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
		<u>Pneumatik</u> <u>Zeichnung/drawing no. 3-41 130</u> <u>Stückliste/part list no. 14 603</u>			
		<u>Pneumatic</u>			
32.	1	Druckregler ohne Manometer	Pressure controller without manometer	KLR 6-1/4"	119,50 119,50
33.	2	Manometer Anschluß rückseitig	Manometer	MS 6; Ø 63 0-6 bar No. 305/63	32,50 65,00
34.	2	Schalldämpfer	Sound absorber	U 1/4" no. 316	10,20 20,40
35.	1	5/2-Wegeventil	5/2-Way valve	MV 26 310-50-0201	467,50 467,50
36.	1	5/2-Wegeventil	5/2-Way valve	MV 26 360-53-0201	293,00 293,00
37.	1	5/2-Wegeventil	5/2-Way valve	MV 26 370-53-0201	572,50 572,50
38.	4	Spule zum Ventil	Coil for valve	0201, 12V=	64,50 258,00
39.	1	Schnellentlüftungs- ventil	Rapid vent valve	SLV 1/2"	116,50 116,50
				Summe: Total:	1.912,40

Ersatzteilliste/Spare Parts List

Unit Nr./Sheet No.:

Datum/Date: April 93

KOM/Our works no.:

3251-2-92

ET 29 912

Firma/Messrs:

UNIDO, Wien / Österreich (THNC/Nordkorea)

Typ:

TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Stück Price / Pcs. Set.	Gesamt Preis Total Price	
		<u>Elektrik</u>	<u>Electric</u>			
46.	1	AKKU-Karte	AKKU-card	ACC	299,50	299,50
47.	1	Netzteil	Power supply	DPC (+/-15V/1,5A)	693,00	693,00
48.	1	Prozessor-Eingabekarte	Processor input card	DPI-B	1.189,00	1.189,00
49.	1	Prozessor-Ausgabekarte	Processor output card	DPO-B	946,50	946,50
50.	1	Festplatteneinschub	Hard disk frame	ES25TE/52/1,44	2.284,00	2.284,00
54.	1	Netzteil	Power supply	FWPC (5/12V /1,5/3A)	485,50	485,50
55.	1	Masseschlußüberwachung	Ground leakage monit. C.	GHC-D	442,50	442,50
57.	1	Speicher-Karte	Memory card	HEP D	3.480,00	3.480,00
58.	1	Mikroprozessor-Einheit	Micro processor unit	MPU-S	2.455,00	2.455,00
60.	1	Netzteil	Power supply	PC (+5V/10A)	1.033,00	1.033,00
61.	1	Pulsgenerator-Karte	Pulse generator card	PGC-D	876,00	876,00
63.	1	Positionierregelung	Processing length contr.	PLCA	3.161,00	3.161,00
64.	1	Spannungsüberwachung	Voltage error detector	VED	1.161,00	1.161,00
65.	1	Bildschirm	Monitor	MT 4000	575,00	575,00
66.	1	Netzteil für Monitor	Power supply for monitor	US 30	78,50	78,50
74.	1	Pulsgenerator	Pulse generator	G71SSLD3I 2000-111-15	911,50	911,50

Summe:

Total: 20.071,00

Ersatzteilliste / Spare Parts List

KOM/Our works no.:

3251-2-92

ET 29 912

Blatt 10 / Sheet 10

Datum/Date: April 93

Firma/Messrs:

UNIDO, Wien / Österreich (TUMC/Nordkorea)

Typ:

TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
105.	10	DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 31 6 A	2,00	20,00
106.	10	DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 51 10 A	2,00	20,00
107.	10	DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 61 16 A	1,00	10,00
108.	10	DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 81 25 A	1,30	13,00
117.	6	Sitor-Sicherung	Sitor fuse	3NE8 003 35 A	25,60	153,60
160.	5	Initiator	Initiator	BI 2-G12K-AP6X	42,00	210,00
161.	5	Initiator	Initiator	BI 5-G18K-AP6X	40,50	202,50
162.	2	Initiator	Initiator	BI 20-G47 -AP6X	199,50	399,00
163.	1	Initiator	Initiator	NI 60-K90SR-VP4X2	295,50	295,50

Summe:

Total: 1.323,60

1 eil	2 Stück	3 Benennung designation	4 Identnummer drawing-no.	5 Werkstoff material	6 Fertigmaß finalized dimension	7 Rohmaß base dimension	8 DIN	9 Gew./kg	10 Bemerkung remark	11 Verschl. wear parts
1	1	Satz Verkleidungsbleche, Blechrutschen usw. bei Montage bestimmen!								
2	1	Satz Schutzgitter bei Montage bestimmen!								
3										
4										
5	4	Segmentanker		HILTI	HSA-M20 x 170				Haspel	
6	10	Segmentanker		HILTI	HSA-M16 x 145				Maschine	
7	4	Segmentanker		HILTI	HSA-M12 x 110				Schlaufensteuerung	
8	12	Segmentanker		HILTI	HSA-M10 x 90				} Schaltschrank + Steuerpunkt	
9	12	6kl.-Holzschrauben			10 x 50					
10	12	Kunstst.-Dübel			12 x 60					
11										
12	1	Steinbohrer			φ 20					
13	1	Steinbohrer			φ 16					
14	1	Steinbohrer			φ 12					
15	1	Steinbohrer			φ 10					

HEINRICH GEORG GMBH
MASCHINENFABRIK
D - 5910 KREUZTAL



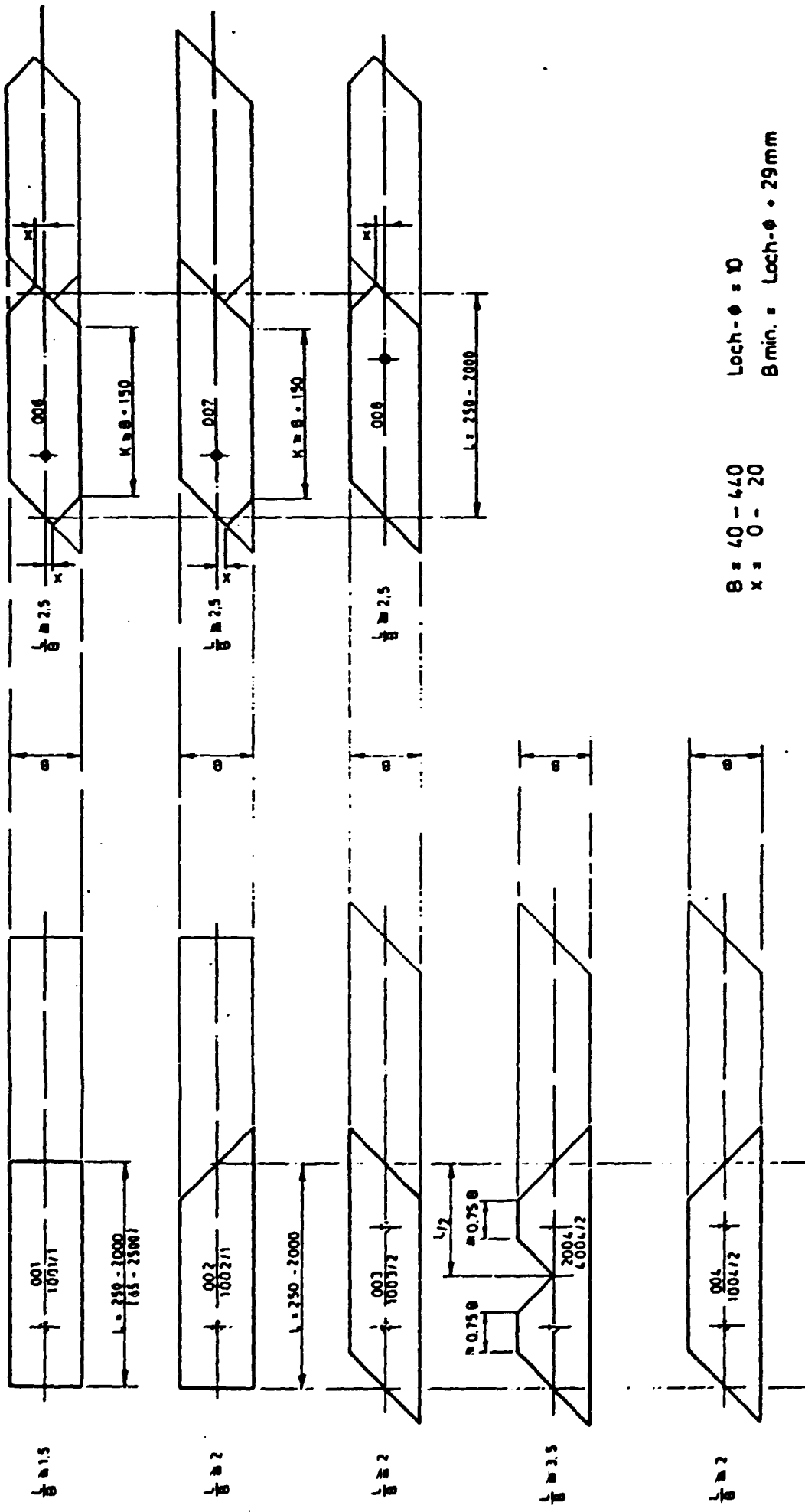
Änderung, modif.	Teil	Spalte	Datum	Name	Benennung Verkleidung u. Zubehör	Datum	Name	Stückliste Nr. part list
					designation	1992	16.12.	Buhn
						entst. aus		14757
						Zchn.g. drawing	Kom. 3251	Blatt sheet 1
								von of 2
								Index

1 Teil	2 Stück	3 Benennung designation	4 Identnummer drawing-no.	5 Werkstoff material	6 Fertigmaß finalized dimension	7 Rehmaß base dimension	8 DIN	9 Gew/kg	10 Bemerkung remark	11 Verschl. L. wear parts
16	20	Senkschraube		5.6	M6 x 12		7991		Verkleidung	
17	14	Unterlegplatte	1/	St 37k	80 x 80 x 6	⇒ 80x6				
18										
19	1	Satz IS-Schlüssel			SW 2 - SW 14		911			
20	1	Satz Maulschlüssel			SW 10 - SW 30		895			
21	1	Satz Hakenschlüssel			A 40/42 ; 45/50 ; 58/62		1813			
22	2	Schultschrank - Verriegelungsschlüssel								
23										
24	1	Hebel - Fettpresse			1 Anschluß - Griffkopf mit 1 Anschluß - Schiebekopf					
25	1	Dose Farbe			1 kg - RAL 6011					
26	1	Dose Farbe			1/2 kg - RAL 1004					
27										
28	1	Rolle Richtdraht								
29										
30										

HEINRICH GEORG GMBH
 MASCHINENFABRIK
 D - 5910 KREUZTAL



Änderung, modif.	Teil	Spalte	Datum	Name	Benennung Verkleidung u. Zubehör	Datum 1992 16.12.	Name Buder	Stückliste Nr. part list 14757
					designation	entst. aus Zchg drawing Kom. 3251		Blatt sheet 2 von of 2



$B = 40 - 440$ Loch- $\phi = 10$
 $x = 0 - 20$ B min. = Loch- $\phi + 29$ mm

Alle Winkel 90° bzw. 45°
 all angles 90° resp. 45°

Kom. 3004

HENRICH GEORG GAMB
 MASCHINENFABRIK
 D - 3810 KNEUZEAL

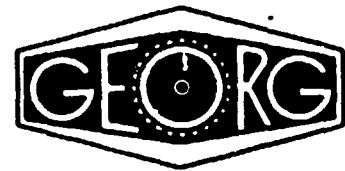


Limit values for

Parameter	Unit	Value
Surface finish	μm	1.5
Material		St 304

3 - 32 182

... TRAIMI - 1,10 - 2000



COPY

**HEINRICH GEORG GMBH
MASCHINENFABRIK**

EQUIPMENT DELIVERY REPORT AND PACKING LIST
=====

Seller: Heinrich Georg GmbH
Maschinenfabrik
Postfach 12 40
D-5910 Kreuztal

Buyer: UNIDO - United Nations
Industrial Development Organization
Vienna International Centre
P.O. Box 300
A-1400 Vienna

Consignee: The Resident Representative of the
United Nations Development Programme (UNDP)
P.O. Box 27
Pyongyang, DPR Korea
Tel. 817574
Telex 35029 UNDP KP
Fax 850-2-817603

Enduser: THMC - Tae'an Heavy Machinery Complex
Tae'an
DPR Korea

Contract No.: 92/094 dated 31.07.1992

UNIDO P. O. Nos: 15-2-2094H
2147H
2148H

UNIDO Proj. Nos: DF/DRK/86/004
US/DRK/89/248
UT/DRK/89/248

Activity Code: J13313

Seller's Ref.: Kom. 3251-2-92

Provision of services and supply of equipment, machinery and parts related to the modernization of a plant for transformer production in the Democratic People's Republic of Korea:

**1 GEORG Transformer Lamination Cut-to-Length Line
Type TBA/ML 400 x 2000 with CNC/85 - Control**

Shipment: Name of Vessel: MV "RICKERMS SPANGHAI"
ETD Hamburg: 02.06.1993
ETA Nampo Port: August 1993



**HEINRICH GEORG GMBH
MASCHINENFABRIK**

- 2 -

Packing:

3 wooden cases

Marking:

1) CONTRACT NO. 92/094
NAMPO PORT, DPR KOREA
UNDP, PYONGYANG, DPR KOREA
CASE 1/3
GROSS WT.: 7070 KG
NET WT.: 5000 KG
DIM.: 640 X 195 X 254 CM

2) CONTRACT NO. 92/094
NAMPO PORT, DPR KOREA
UNDP, PYONGYANG, DPR KOREA
CASE 2/3
GROSS WT.: 2450 KG
NET WT.: 1800 KG
DIM.: 280 X 90 X 257 CM

3) CONTRACT NO. 92/094
NAMPO PORT, DPR KOREA
UNDP, PYONGYANG, DPR KOREA
CASE 3/3
GROSS WT.: 2680 KG
NET WT.: 2000 KG
DIM.: 245 X 165 X 232 CM

Total net weight of consignment:	8800 kg
Total tare of consignment:	3400 kg
Total gross weight of consignment:	12200 kg

D-5910 Kreuztal, 26.05.1993
VK 1 Ls

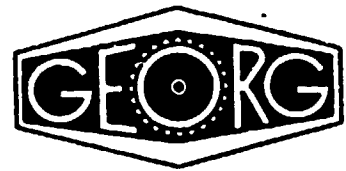
- 3 -

Postfach 12 40 D-5910 Kreuztal
☎ (0 27 32) 7 79-0
☎ 875 500 ☎ 2732-330
Georgmaschinen Kreuztal
☎ (0 27 32) 77 93 40

Werk I:
Kreuztal Siegener Str. 73-83 | B 541
Werk II:
Kreuztal Langenauer Straße 13

Deutsche Bank AG, Siegen 200 205 | BLZ 460 700 901
Dresdner Bank AG, Siegen 3712 333 | BLZ 460 800 101
Commerzbank 811 112 200 | BLZ 460 400 331
Volksbank Siegen 2502 390 300 | BLZ 460 600 401

Geschäftsführer
Heinrich Georg, Gerd Georg
Engelwagen
Amtsgericht Siegen HRB 2004



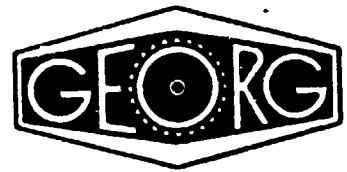
**HEINRICH GEORG GMBH
MASCHINENFABRIK**

- 3 -

Case 1/3 containing:

Item as per Specification:	Description and Dimensions:	Net Weight:
1)	2. Loop control, 3. Transport and feed control unit, 4. Stand frame for V-notch press, 5. V-notch press (fixed), 7. Pneumatic equipment, 8. Shearing unit, 9. Magnet transport belt, 5000 x 1800 x 2000 mm	4685 kg
2)	Cardboard box 930 x 600 x 600 mm	60 kg
	11. Spare parts for machine repair and maintenance according to attached spare parts list ET 29 9i2	
3)	7. Control desk 1250 x 1100 x 1600 mm	150 kg
4)	Wooden box 1250 x 450 x 550 mm	100 kg
	10. - 1 Set spare carbide blades for V-notch press - 1 Set spare carbide blades for shear - Special maintenance tools and consumable materials according to attached part list No. 14757	
5)	Cardboard box	5 kg
	7. Harddisks	
Total net weight:		5000 kg
Case tare:		2070 kg
Total gross weight:		7070 kg

- 4 -



**HEINRICH GEORG GMBH
MASCHINENFABRIK**

- 4 -

Case 2/3 containing:

Item as per Specification:	Description and Dimensions:	Net Weight:
1) 7.	Control cabinet (containing monitor of control desk) 2500 x 650 x 2200 mm	1800 kg
Total net weight:		1800 kg
Case tare:		650 kg
Total gross weight:		2450 kg

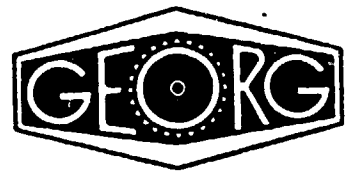
- 5 -

Postfach 12 40 D-5910 Kreuztal
☎ (0 27 32) 7 79-0
☎ 875 508 ☎ 2732-330
Georgmaschinen Kreuztal
Georg 88-2300-00

Werk I:
Kreuztal, Siegener Str. 73-83 (B 54)
Werk II:
Kreuztal, Langenauer Straße 13

Deutsche Bank AG, Siegen 208 205 (BLZ 460 700 90)
Dresdner Bank AG, Siegen 3 712 333 (BLZ 460 800 10)
Commerzbank 811 112 200 (BLZ 460 400 33)
Volksbank Siegen 2 502 380 300 (BLZ 460 600 40)

Geschäftsführer
Hermann Georg, Gerd Georg
Eingetragen
Amtsgericht Siegen HRB 2004



**HEINRICH GEORG GMBH
MASCHINENFABRIK**

- 5 -

Case 3/3 containing:

Item as per Specification:	Description and Dimensions:	Net Weight:
1) 1.	Double sided decoiler 2150 x 1450 x 1800 mm	1960 kg
2)	Cardboard box 350 x 280 x 100 mm	10 kg
13.	- Mechanical documentation - Drawings and manufacturing instructions for manufacturing of cores for an oil-immersed electrical transformer of 630 kVA	
3)	Cardboard box 500 x 250 x 300 mm	30 kg
	Electrical documentation	
Total net weight:		2000 kg
Case tare:		680 kg
Total gross weight:		2680 kg

Satzteilliste/Spare Parts List

Blatt Nr./Sheet No: 1
 Datum/Date: April 93

Our works no.: 3251-2-92 ET 29 912
 Messra: UNIDO, Wien / Österreich (THMC/Nordkorea)
 TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
		<u>Doppelspreizhaspel</u> <u>Double decoiler</u> <u>Zeichnung/drawing no. A-5746</u> <u>Stückliste/part list no. 9688</u>			
2.	2	Satz=4 Stück Bremsklotz zur MRB 115.000.001	Set=4 pcs. Braking pad for MRB 115.000.001		
3.	1	Membrane zur MRB 115.000.001	Diaphragm for MRB 115.000.001		
		<u>Führung vor dem Vorschub</u> <u>Guidance in front of feed unit</u> <u>Zeichnung/drawing no. 2-17 725</u> <u>Stückliste/part list no. 14 570</u>			
4.	2	Rollenleiste	Roller bar		
5.	6	Kugellagerbolzen	Ball bearing bolt		
6.	6	Rillenkugellager	Groove ball bearing		

Summe:
Total:

Satzteilliste/Spare Parts List

Blatt Nr./Sheet No.: 2
 Datum/Date: April 93

Our works no.: 3251-2-92 ET 29 912
 Messra: UNIDO, Wien / Österreich (THMC/Nordkorea)
 TBA/ML 400 x 2000 CNC/85

Pos. os.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Stück Price / Pcs.	Gesamt Preis Total Price
		<u>Vorschub- und Meßrollenaggregat</u> <u>Feed and measuring roll unit</u> <u>Zeichnung/drawing no. 0-7623</u> <u>Stückliste/part list no. 14 564</u>			
7.	1	Treibrolle	Drive roll	Zg/drwg. 3-41 005	
8.	1	Meßrolle	Measuring roll	Zg/drwg. D-30 217	
10.	1	Satz Dichtungen zum PN-Zylinder RM 8080	Set of seals for PN-cylinder RM 8080	Best/order no. QM/8080/00	
		<u>PN-V-Stanze</u> <u>Zeichnung/drawing no. A-5733</u> <u>Stückliste/part list no. 9630</u>			
12.	1	Satz Dichtungen zum Drehzylinder DSO-P-80/350-P-29811	Set of seals for Rotating cylinder DSO-P-80/350-P-29811	80 DSO RAD P Art.-Nr. 967 003	
13.	1	Simplaflex-Kupplung	Simplaflex coupling	Zg/drwg. 4-41 357 14.301.35.1.1 Bg. Ø30 H7;	

Summe:
Total:

Stückliste/Spare Parts List

Blatt Nr./Sheet No.: 3
 Datum/Data: April 93

Our works no.: 3251-2-92 ET 29 912
 Messrs: UNIDO, Wien / Österreich (THMC/Nordkorea)
 TBA/HL 400 x 2000 CNC/85

Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Price / Pcs. Set	Gesamt Preis Total Price
	<u>Führung im Stanzaggregat</u> <u>Guidance - Punching unit</u> <u>Zeichnung/drawing no. 0-6870</u> <u>Stückliste/part list no. II 441</u>			
14.	24 Kugellagerbolzen	Ball bearing bolt	Zg/drwg. E-15 322	
15.	24 Rillenkugellager	Groove ball bearing	608-2 Z	
	<u>Hubführung</u> <u>Lifting guide</u> <u>Zeichnung/drawing no. 0-6905</u> <u>Stückliste/part list no. II 443</u>			
16.	4 Kugellagerbolzen	Ball bearing bolt	Zg/drwg. E-15 322	
17.	4 Rillenkugellager	Groove ball bearing	608-2 Z	
18.	1 O-Ring	O-ring	Ø 19,2 x 3	
19.	1 O-Ring	O-ring	Ø 34,2 x 3	
20.	1 O-Ring	O-ring	Ø 40 x 2	

Summe:
Total:

Satzteilliste/Spare Parts List

Blatt Nr./Sheet No.: 5
 Datum/Date: April 93

Our works no.: 3251-2-92 ET 29 912
 Messrs: UNIDO, Wien / Österreich (THMC/Nordkorea)
 TBA/HL 400 x 2000 CNC/85

Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
	<p><u>PN-Scherenschwenkung</u> <u>PN-swing of shear</u> <u>Zeichnung/drawing no. 0-6847</u> <u>Stückliste/part list no. II 351</u></p>			
27.	1 Satz Dichtungen zum Drehzylinder DSO-P-160/P-46928	Set of seals for rotating cylinder DSO-P-160/P-46928		
		160 DSO RAD 0 Art.Nr. 967 006		
29.	1 Satz Dichtungen zum PN-Zylinder RM 8063B	Set of seals for PN-cylinder RM 8063B		
		Best/order no. QM/8063/00		
	<p><u>Transportband</u> <u>Conveyor belt</u> <u>Zeichnung/drawing no. 1-10 427</u> <u>Stückliste/part list no. II 428</u></p>			
30.	1 Zahnkranz zur ROTEX-Kupplung 24/28	Rim of the gear for ROTEX-coupling 24/28		
		Teil/part no. 02024 100 0001		
31.	2 Transportband	Conveyor belt		
		G: 10 Breite/Width: 80 mm Länge/Length: 1800 mm		

Summe:
Total:

ersatzteilliste / Spare Parts List

Blatt Nr./Sheet No.: 7
 Datum/Date: April 93

GM/Our works no.: 3251-2-92 ET 29 912
 Firma/Messra: UNIDO, Wien / Österreich (THMC/Nordkorea)
 Sp: TBA/ML 400 x 2000 CNC/85

Pos. Pos.	Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch		Type	Preis / Price / Stück Pcs.	Gesamt Preis Total Price
		<u>Elektrik</u>	<u>Electric</u>			
46.	1	AKKU-Karte	AKKU-card	ACC		
47.	1	Netzteil	Power supply	DPC (+/-15V/1,5A)		
48.	1	Prozessor-Eingabekarte	Processor input card	DPI-B		
49.	1	Prozessor-Ausgabekarte	Processor output card	DPO-B		
50.	1	Festplatteneinschub	Hard disk frame	ES25TE/52/1,44		
54.	1	Netzteil	Power supply	FWPC (5/12V /1,5/3A)		
55.	1	Masseschlußüberwachung	Ground leakage monit. C.	GMC-D		
57.	1	Speicher-Karte	Memory card	HEP D		
58.	1	Mikroprozessor-Einheit	Micro processor unit	MPU-S		
60.	1	Netzteil	Power supply	PC (+5V/10A)		
61.	1	Pulsgenerator-Karte	Pulse generator card	PGC-D		
63.	1	Positionierregelung	Processing length contr.	PLCA		
64.	1	Spannungsüberwachung	Voltage error detector	VED		
65.	1	Bildschirm	Monitor	MT 4000		
66.	1	Netzteil für Monitor	Power supply for monitor	US 30		
74.	1	Pulsgenerator	Pulse generator	G71SSLDBI 2000- 111-15		

Summe:
Total:

Stückliste / Spare Parts List

Blatt Nr./Sheet No.: 8

Werk no.: 3251-2-92 ET 29 912
 Messer: UNIDO, Wien / Österreich (THMC/Nordkorea)
 TBA/ML 400 x 2000 CNC/85

Datum/Date: April 93

Stück Pcs.	Bezeichnung/Designation Deutsch / Englisch	Type	Preis / Price /	Gesamt Preis Total Price
5.	10 DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 31 6 A	
6.	10 DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 51 10 A	
7.	10 DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 61 16 A	
8.	10 DIAZED-Sicherungseinsatz	DIAZED-fuse link	5SB2 81 25 A	
7.	6 Sitor-Sicherung	Sitor fuse	3NE8 003 35 A	
10.	5 Initiator	Initiator	B1 2-G12K-AP6X	
11.	5 Initiator	Initiator	B1 5-G18K-AP6X	
12.	2 Initiator	Initiator	B1 20-G47 -AP6X	
13.	1 Initiator	Initiator	N1 60-K90SR-VP4X2	
			Summe: Total:	

2 Stück	3 Benennung designation	4 Identnummer drawing-no.	5 Werkstoff material	6 Fertigmaß finalized dimension	7 Rohmaß base dimension	8 DIN	9 Gew./kg	10 Bemerkung remark	11 Verschl. wear parts
1	Satz Verkleidungsbleche, Blechrutschen usw. bei Montage bestimmen!							} an den Aggregaten installiert	
1	Satz Schutzgitter bei Montage bestimmen!								
4	Segmentanker		HILTI	HSA - M20 x 170				Hassel	
10	Segmentanker		HILTI	HSA - M16 x 145				Maschine	
4	Segmentanker		HILTI	HSA - M12 x 110				Schlaufensteuerung	
12	Segmentanker		HILTI	HSA - M10 x 90				} Schaltschrank + Steuerpunkt	
12	6 kl. - Holzschrauben + Scheiben			10 x 50					
12	Kunstst. - Dübel			12 x 60					
1	Steinbohrer			φ 20					
1	Steinbohrer			φ 16					
1	Steinbohrer			φ 12					
1	Steinbohrer			φ 10					



Änderung, modif.	Teil	Spalte	Datum	Name	Benennung	Datum	Name	Stückliste Nr. part list
					Verkleidung u. Zubehör	1992	16.12.	
					designation	entst. aus		14757
						Zchg. drawing Kom. 3251	Blatt sheet 1	von of 2

1	2	3	4	5	6	7	8	9	10	11
Stück	Benennung designation	Identnummer drawing-no.	Werkstoff material	Fertigmaß finalized dimension	Rehmaß base dimension	DIN	Gew./kg	Bemerkung remark	Verz. u. Teil wear parts	
20	Senkschraube		5.6	M6 x 12		7991		Verkleidung		
14	Unterlegplatte	1/2	St 37k	80 x 80 x 6	⇒ 80 x 6					
1	Dose Handwachs- mittel									
1	Satz 15-Schlüssel			SW 2 - SW 14		911				
1	Satz Haulschlüssel			SW 10 - SW 30		895				
1	Satz Hakenschlüssel			A 40/42 ; 45/50 ; 58/62		1813				
2	Schulterschrank - Verriegelungsschlüssel									
1	Hebel - Fettpresse			mit 1 Anschluß - Griffkopf 1 Anschluß - Schiebekopf						
1	Dose Farbe			1 kg - RAL 6011						
1	Dose Farbe			1/2 kg - RAL 1004						
1	Dose Entfetter									
1	Rolle Richtdraht									



Änderung, modif.	Teil	Spalte	Datum	Name	Benennung Verkleidung u. Zubehör designation	Datum	Name	Stückliste Nr. part list 14757
						1992	16.12.	
						entst. aus		Index

Abnahme/Übernahme-Protokoll zur KOM:
acceptance/Take-over minutes for KOM: 3251

Kunde/Customer: THMC Land/Country: D.P.R. KOREA

Durch folgende Personen: Kunde/Customer GEORG
By following person: MR. JUANNO ROGER N. VICTOR

Testlauf/Testrun o.k

Mechanisch/mechanical o.k

elektrisch/electrical o.k

Programme/Program: o.k.

Bemerkungen:

Remarks: /

Ersatzteile geprüft entsprechend separater Liste
spare parts checked according separate list

o.k.

Anlage dem Vertrag entsprechend überprüft:
Line was checked according to the contract: o.k

Bemerkungen:
Remarks: /

Die Anlage wird mit dem heutigen Tag vom Abnehmer übernommen, gleichzeitig mit der
Abnahme beginnt die Garantiezeit.
The Line will be taken over by the customer. With the acceptance starts the
guarantee-time.

Bemerkungen: o.k
Remarks:

J. alk
— Kunde/Customer —

Roger Chen Victor Zhang
— GEORG —

Ort/place TAEAN Datum/Date 20.06.1994

Draft Final Report

Messrs Roger Chen (Chen Jia Xiang) and Victor Zhang (Zhang Yong Qing), engineers from Georg Products Service Centres in China, were assigned by Heinrich Georg GMBH - Germany to work at Tae'an Heavy Machine Complex in DPRK between 3 May and 21 June 1994 to undertake installation/test operation of transversal cutting machine of TAB/ML 400 x 2000 with CNC/85 control line and conduct technical training of operators.

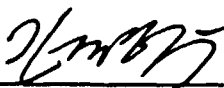
Benefitting from the activities of the engineers were many technicians and skilled workers of the complex including chief engineer, maintenance services section chief and head of the workshop.

The test operation and its outcome showed that the line conforms with all the technical indexes laid down in the contract and it is fully equipped with all the spare parts and accessories. During the process of the installation, the two engineers thoroughly tested the functions of the line. The result of the test on the operation of comprehensive program was satisfactory for both load / unload testing. In the meantime, we have made laminating works for two sets of 630 KVA transformer and some laminating works for reactors. The accuracy of the length and angle was within the tolerance and burr-free on the laminations.

The engineers have trained the operators in the field of machine, computer and its maintenance how to operate and make the machine, maintenance and lubrication program as well as trouble searching. Besides, they have also showed the operators on the changing method of cutting tools.

At present, the operators of project have prepared to operate the machine by themselves to produce the different lamination for transformers.

During the installation and commissioning of transversal cutting machine, UNDP resident representative in Pyongyang has visited to the THMC and participated in the acceptance test of machine. He has also expressed his satisfaction of the acceptance test. GEORGO engineers have expressed their grate thanks to the project authority for their close cooperation and support during period of the installation and commissioning of machine and, promised with project staff that GEORGO would provide the good services to THMC in the future.



Kim Chi Hak
Manager
Tae'an Heavy Machinery Complex



Chen Jia Xiang
Engineer
Beijing GEORGO Service Centre

CERTIFICATE OF ACCEPTANCE

The parties to the contract acknowledge the satisfactory conclusion of the acceptance test on the transversal cutting machine provided under the UNIDO Contract No: US/DRK/89/248.

For and on behalf of

For and on behalf of

Signature 리정우

Signature 陈嘉祥

Name Li Hyong U

Name Chen Jia Xiang

Title National Project Director

Title Representative, GEORGO

Date: 20 June 1994

Date: 20 June 1994