

OPERATION MANUAL



HRZ 300 HYDRAULIC HAND PRESS

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Thank you for buying our product.
Before using the equipment, please carefully read the user and the maintenance manuals.

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* ERKO reserves the right to introduce construction modifications due to product modernization.



ISO 9001
ISO 14001

Before using this equipment, please read the user and the safety manuals.

1. APPLICATION

HRZ 300 Hydraulic hand press is a hand tool designed for medium and light intensive installation work.

The tool has a very wide range of applications thanks to exchangeable dies and inserts. Hydraulic hand press is characterized by simple operation and high reliability. It fulfills its tasks, both in assembly halls as well as in the field. It allows work in any position. Force, which is required for crimping terminals is transferred to the die clamping the leverage provided by means of sensitive, so the process of crimping requires limited effort from the operator.

HRZ 300 Hydraulic hand press is dedicated for:

- Cu tubular terminals and connectors on cable conductors of $6 \div 300 \text{ mm}^2$
- Al tubular terminals and connectors on cable conductors (ZS dies) of $16 \div 240 \text{ mm}^2$
- ring terminals with and without insulation of $10 \div 120 \text{ mm}^2$
- cable end-sleeves with and without insulation of $25 \div 185 \text{ mm}^2$
- round forming Al sector conductors of $16 \div 240 \text{ mm}^2$

2. TECHNICAL DATA

Dimensions	129x69x410 mm
Weight (without dies)	4,5 kg
Maximum torque on the lever	56 Nm
Working medium	olej hydrauliczny L-HM 22
Oil tank capacity	0,12 dm ³
Maximum stroke	35 mm
Working pressure	530 bar
The maximum force on the piston rod	66,6 kN
Working temperature	-25÷50 °C

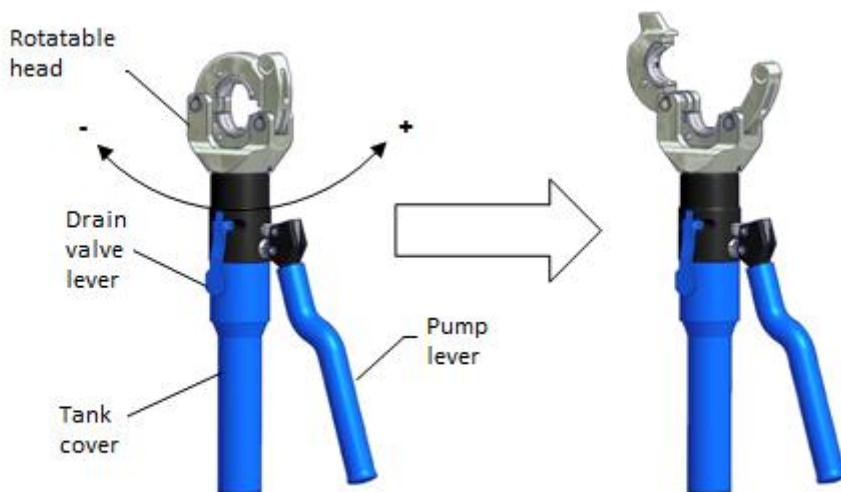
Supplied in a K12 metal box..

3. INSTRUMENTATION

4. The press works with die types:
1. .

Dies type	Application	Cross-section [mm ²]
ZS	Cu tubular terminals and connectors	6-300
	Al tubular terminals and connectors	16-240
ZA	Cu ring terminals without insulation	10-120
ZE	Cu ring terminals with insulation	10-120
ZT	cable end-sleeves with and without insulation	25-185
ZF	round forming Al sector conductors	16-240

4. OPERATION



- Working by repeated swinging movements of pump lever
- Return move is automatic by pressing drain valve lever.

4.1. CHOICE OF DIES

Terminals		TYPE OF TERMINALS, CONNECTORS							
		Wire dimension	Tubular copper connectors according to DIN KCR, KCL KC45, KC90, KCM, KLP, KLN,	Tubular copper and other connectors KCS, KCS45, KCS90, KLA, KLS, KLR, KLT, KLY, LY, KLB	Tubular AL connectors according to DIN AR, AS, ALD, ACL, ACB, ACK, AC, AFD	Tubular AL thinwalled ARC, ALC	Tubular AL thickwalled ARG, ALG, AFG	Ring, spade, pin terminals according to DIN KOA, KNA, KWA	Ring, spade, pin terminals according to DIN KOE, KNE
ZS	6 mm ²		6						
	10 mm ²	6	7						
	16 mm ²	8	8	12	9	12			
	25 mm ²	10	10	12	10	14			
	35 mm ²	12	12	14	12	16			
	50 mm ²	14	14	16	14	18			
	70 mm ²	16	16	18	16	20			
	95 mm ²	18	18	22	18	22			
	120 mm ²	20	19	22	20	25			
	150 mm ²	22	22	25	22	28			
185 mm ²	25	23	28	23	30				
240 mm ²	28	25	32	28					
300 mm ²	32	30							
ZA	10 mm ²						10		
	16 mm ²						16		
	25 mm ²						25		
	35 mm ²						35		
	50 mm ²						50		
	70 mm ²						70		
	95 mm ²						95		
120 mm ²						120			
ZE	10 mm ²							10	
	16 mm ²							16	
	25 mm ²							25	
	35 mm ²							35	
	50 mm ²							50	
	70 mm ²							70	
	95 mm ²							95	
120 mm ²							120		
ZT	25 mm ²								25
	35 mm ²								35
	50 mm ²								50
	70 mm ²								70
	95 mm ²								95
	120 mm ²								120
	150 mm ²								150
185 mm ²								185	

Feature (conventional socket) stamped on the ZS dies, indicates the approximate outer diameter of the tip in mm.

Tab.2. CHOICE OF DIES TYPE ZS

Dies ZS are marked with discriminants. Discriminants correspond to the terminal external diameter.

Dies ZS should be chosen according to the table:

Type of dies	Discriminants	Type of terminals - diameter				
		Tubular copper according to DIN KCR, KC45, KC90, KCL, KLP, KLN,	Tubular copper and other KCS, KCS45, KCS90, KLA, KLS, KLR, KLT, KLX, KLY, KLB	Tubular AL according to DIN AR, AS, ASD, ALD, AFD, AC, ACK, ACB,	Tubular AL, thinwalled ARC, ALC,	Tubular AL thickwalled ARG, ALG, AFG
ZS	6	10	6			
	7		10			
	8	16	16			
	9				16	
	10	25	25		25	
	12	35	35	16;25	35	16
	14	50	50	35	50	25
	16	70	70	50	70	35
	18	95	95	70	95	50
	19		120			
	20	120			120	70
	22	150	150	95; 120	150	95
	23		185		185	
	25	185	240	150		120
	28	240		185	240	150
	30		300			185
32	300		240			

- Extended set of ZS/K – 17 sizes

- Basic set of ZS for terminals according to DIN – 12 sizes

4.2. DIE REPLACEMENT

In order to change dies there is no need to open the head. It is enough to press button 1 until perceived resistance and push dies out (draw. 1). The same way dies should be changed in upper socket (Fig. 3) and lower socket (Fig. 4) of the head. In order to install dies, chosen discriminants should be put on the socket (Fig.3) and to upper part of the head (Fig. 4) without need to press button (Fig. 1). Dies will be automatically blocked when dies are in appropriate position, what guarantees immobilization of dies in the head.

Fig. 1. Die replacement.



4.3. CRIMPING OF TERMINALS AND CONNETORS

- Select an adequate terminal (a cable before crimping should have possibly minimal clearance in the cylindrical part of the terminal or connector)
- Select a proper crimping die for a given terminal type and diameter of the cable
- Remove insulation from the wire or cord so to allow the insertion of the wire into the cylindrical part of terminal or connector
- Push the wire into the bottom of the cylindrical part of the terminal or the connector
- Make sure the head is correctly closed and will not open during crimping
- Crimp the terminal (connector) until the dies join and until the drive overflow valve action.

To obtain a proper connection follow the instructions below:

- For tubular terminals and connectors crimped with dies **ZS**. Follow the markings on the tubular part of the terminal. In case there are no markings on the terminal (connector) make a large number of crimping maintaining intervals between the crimping (Draw. 2a and 2b). Crimping of the terminal should be started from the tab (impression I) and continued towards the wire (impressions II and III). Crimping of the connector should be started from its middle part (impression I) and continued towards the wire.
- For terminals crimped with dies **ZA**. Put the terminal between dies such a way so after crimping print on the roll part of the terminal was performed on the middle of the soldered part or in front of the soldered part. (Draw. 2c).

- For end-sleeve cable crimped with dies **ZT**. Make the crimping on the end-sleeve cable so to make trapezoidal form on the whole length of the cable (Draw. 2d). Such crimping achieve the full durability on conductors only after the cable is screwed on the busbar.
- For ring terminals with insulation crimped with dies **ZE**. Put the terminal between dies such a way that flat part of the terminal is parallel to the surface of the dies. Make one press.

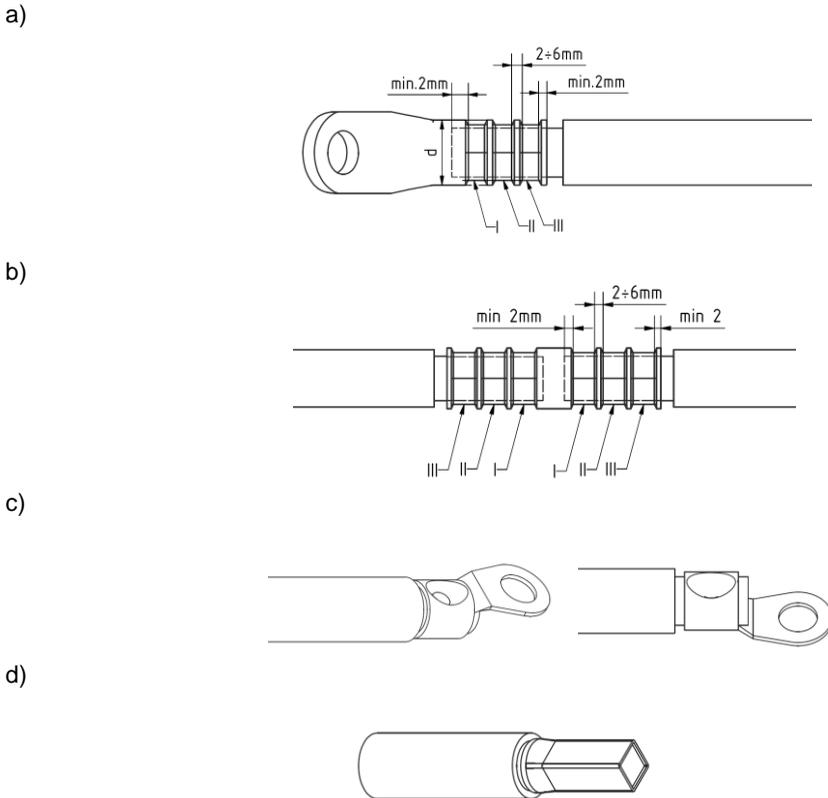


Fig.2. Crimping form a) tubular terminal b) tubular connector
c) ring terminal d) end-sleeve cable.

4.4. ALUMINUM SECTOR CONDUCTORS ROUND FORMINGF

- Place the ZF-forming dies in head (as with proceed as with ZS dies)
- Enter insulated aluminum conductor between the dies (Fig. 3)
- Press conductor (first press).
- In the case of round forming turn the conductor by 90 ° and press again.
- Repeat the operation of forming moving toward the end of the conductor to completely form the conductors.

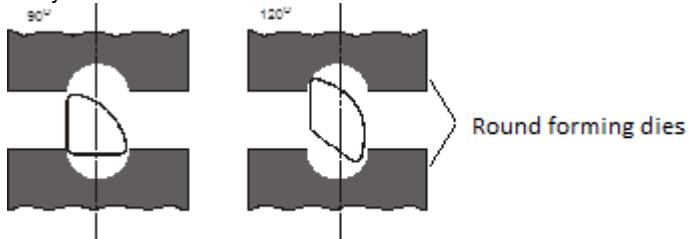
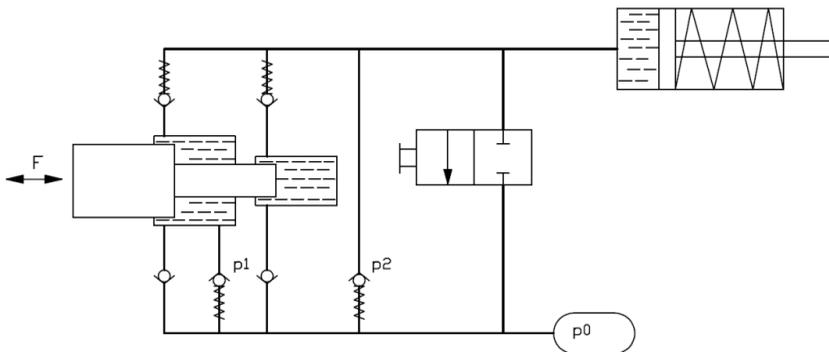


Fig.3. Al sector conductors round forming.

5. SPARE PARTS

HRZ300 hydraulic hand press is a hydraulic system which uses high pressure hydraulic cylinder, supplied with two-speed circuit hydraulic plunger pump. With these circuits press performs rapid movement under a bias and working under load. 180 ° swiveling head for working in hard to reach places.

Fig.4 Hydraulic diagram



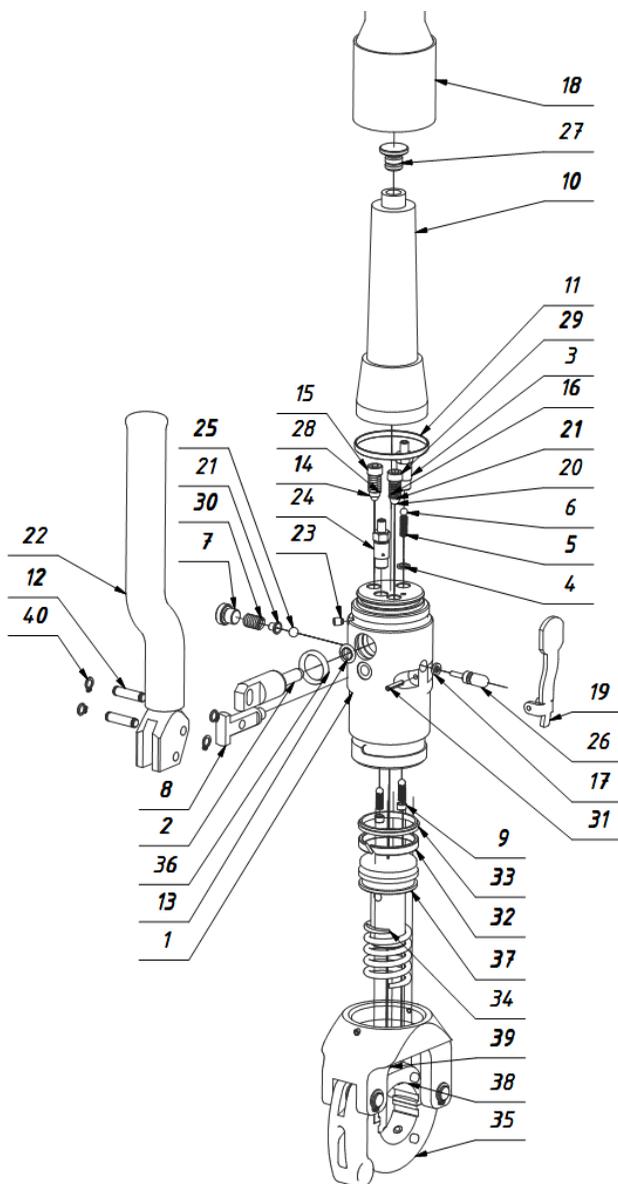


Fig. 5. HRZ 300 Hand Press Construction.

Chart 3 List of HRZ300 spare parts.

Lp.	Quantity	Name of an element	Index of spare part
1	1	Body	HRZ300-01
2	1	Piston 1	HR300-02-A
3	1	Suction tube	HR300-04-A
4	2	Washer	HR300-22
5	3	Spring	WH100-01-20-A
6	4	Ball	NLKU_4,75
7	1	Plug	HOKO_S-VSTI-M10-1-ED
8	1	Bracket	HR300-07-A
9	2	Screw	HR300-08
10	1	Oil tank	HR300-09
11	1	Ring	HR300-10
12	2	Bolt	HR300-11-A
13	1	Ring	HUTR_RS1500080-T46N
14	1	Holdfast	WH100-01-13
15	1	Screw	WH100-01-14
16	1	Spring	HR300-12-C
17	1	Oring	HUOR_OR3,3-2,4
18	1	Tank cover	HR300-13-A
19	1	Valve lever	HR300-16-A
20	1	Ball	HUTR_DB0000635-N7696
21	2	Valve holdfast	HR300-17-A
22	1	Lever	HR300-15-A
23	1	Screw	NEZS_BI-M5-6W-CZ
24	1	Suction tube	HR300-19
25	1	Ball	NLKU_6,35
26	1	Slide	HRZ300-03
27	1	Pin	HR300-18
28	1	Spring	H700-01-25
29	1	Valve screw	HR300-20
30	1	Spring	WH100-01-22-A
31	1	Dowel pin	NEZK_S2-3-16
32	1	Ring	HUTR_GP6500400-C380
33	1	Ring	HUTR_PSK200400-T46N
34	1	Spring	GZ300-06
35	1	Head	GZ300-01
36	1	Ring	HRZ300-02
37	1	Piston	GZ300-03
38	1	Insert (set)	GZ300-05
39	1	Screw	NEZS_WNI-M5-16-8.8-OC
40	4	Ring	NEZO_PZ-6

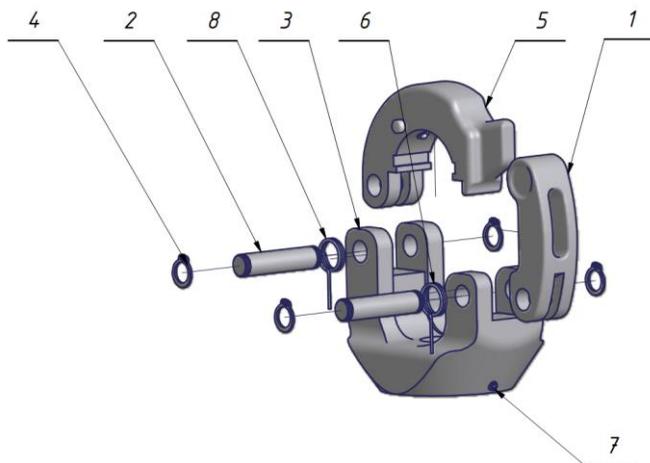


Fig. 6 Head construction

Lp.	Quantity	Name of an element	Index of spare part
1	1	Link	GZ300-01-03
2	2	Bolt	GZ300-01-04
3	1	Arm	GZ300-01-01-A
4	4	Ring	NEZO_PZ-10
5	1	Flipper	GZ300-01-02
6	1	Spring	GZ300-01-05-A
7	2	Screw	NEZS_BI-M4-10W-CZ
8	1	Spring	GZ300-01-06-A

Chart 4 List of head spare parts

6. MAINTENANCE AND OPERATION RECOMENDATIONS

HRZ 300 hydraulic hand press is manufactured in accordance with the latest technology and the maintenance of safety regulations. However, the tool can lead to emergency situation if it is used by untrained person, improper or contrary to the purpose of the device. Security risk can be avoided by proper usage of the tool and thereby prolong its life.

1. The following must be done before work is started::
 - a. check the technical condition of the head,
 - b. check proper connection with the pump,
 - c. make sure that treated elements are not live.
2. Maximum working pressure has been set by the manufacturer on the pressure relief valve on the value of 530 bar and can not be adjusted during operation of the device.
3. Use adequate dies for a given type of terminals and wire diameter (acc. to Chart 1).
4. Do not unscrew the tank cover for no particular reason, because it protects rubber oil tank.
5. In case of loss, oil must be replaced.

Press the lever drain valve to withdraw oil into the tank, then turn smashed into a vertical position (head down), unlock the cover of the tank by removing the screw No.23 Fig. 2 unscrew the oil tank No.18, pull out the plug No.27, and then add oil (to completely fill the tank). After filling up the oil press No.27 plug in the oil tank No.10 making sure that the oil tank there is no air. After filling up the oil tank screw cover and secure it against loosening a screw.
6. The oil should be changed every 24 months. Use oils in accordance with DIN 51524 Part 1 to 4, HLP class or classes HM ISO 6743/4, with a viscosity of ISO VG 22, 32. It is recommended to use oil Hydrol® L-HM 22 available in ERKO: packaging 1dm³ - order code OLEJ_HYDR_1 , packaging 5dm³ - order code OLEJ_HYDR_5.
7. It is recommended to review of the hydraulic system clean, rinse, oil change, pressure regulation, every 24 months.
8. Keeping oil purity and its periodic exchanges are an essential condition for the sustainability of hydraulic components and significantly prolongs their durability and reliability. The required purity of oil: Class 9 (recommended 8) according to the standard NAS 1638.
9. During the use of the head set of the pin should be oiled periodically. Depending on the load, it is recommended to oil once a week at work of one shift (about 40h/week). With the increase of the intensity of the load, increase the frequency of oiling accordingly.
10. When doing the work, do not put any item into the working space, other than those for which the tool is intended.
11. Protect the equipment against the influence of atmospheric factors, corrosion, debris and mechanical damage. If the device gets wet, dry it and protect against corrosion if

the unit gets dirty, clean it (you can use water) then immediately dry and protect against corrosion. When the device is not operated for a long time, it must be protected against corrosion also clean and as dry as possible storage conditions should be provided. For corrosion protection available on the market use preservatives metal products such as: technical vaseline, WD-40.

12. Do not leave the system under pressure (always after use to withdraw oil from the piston to the oil tank).

Proper maintenance prolongs usage of tool.

7. SERVICE

ERKO provides full warranty and post-warranty service.

8. DISPOSAL

After the end of the exploitation period, utilize or recycle the particular elements of this equipment according to the regulations.

'According to the regulations on ZSEiE it is forbidden to dispose the worn out equipment labelled with the crossed basket with other waste. In order to dispose electronic or electric equipment, users are obliged to deliver it to a specialized center collecting worn out equipment.

The above regulatory responsibility was introduced in order to limit the amount of waste of worn out electric and electronic equipment and to ensure the relevant collection, retrieval and recycling levels. Such equipment does not contain dangerous components that would have a particularly negative effect on the environment and health.'

9. CONDITIONS OF WARRANTY

Dear Customer,

Thank you for buying our product. We would like to inform you that we offer a 12-month guarantee for the product that you have purchased, starting on the day of purchase. The guarantee includes removing any faults free of charge, provided that they have been caused by manufacture of technical defects of the product and that the device has been used according to its purpose and to the requirements laid down in the operation manual. Please refer to the detailed conditions of guarantee mentioned in the Guarantee Card.

9.1. This Guarantee presents the obligation of the manufacturer, hereinafter referred to as Guarantor, to remove free of charge any physical defects of the device, originating within 12 months of the date of purchase

9.2. This guarantee card, together with the product in question and a copy of the purchase receipt (invoice), is a proof of the guarantee rights. The Guarantor demands that a copy of the purchase receipt (invoice) be presented when the complaint is to be considered.

9.3. This guarantee does not include the tools in which damage occurred due to:

- improper or negligent operation, contrary to the purpose of the device or as a result of the user's lack of skill, mechanical damage to the product, resulting from improper storage, transport or failure to follow the required maintenance procedures, mechanical damage to the product, resulting from overloading and the defects caused by it,
- natural wear resulting from normal operation of a tool, repairs done by unauthorised persons,
- maintenance and/or repair done by the user, which resulted in the damage,
- force majeure (downpour, fire, flood, atmospheric discharge, etc.), using spare parts other than original ones or using materials other than those recommended by the manufacturer, intended for use with the device.

9.4. This guarantee does not cover the following: operations related to the assembly, start-up, maintenance, those provided for in the instruction manual, which should be performed by the user, at his own cost

9.5. The rights resulting from this guarantee do not entitle the user to claim compensation for any lost profits or damage incurred due to the defect of the device.

9.6. The manner of removing the defect shall be chosen by the Guarantor, who can repair the damage either by replacing the faulty part or by replacing the whole device. Regardless of the manner of removing the defect, the guarantee continues and is extended by the time that the defect is removed by the Guarantor. Should the device or its part be replaced or repaired, the guarantee period restarts in relation to the device or its part, as applicable

9.7. If the complaint is accepted, the Guarantor undertakes to repair the device or its faulty part within 14 days of the date of reporting the defect. If, owing to its difficulty, the repair is extremely labour consuming or if any parts have to be ordered abroad, the period shall be extended accordingly, the Guarantor shall make every effort to remove the defect within the shortest time possible, not exceeding 30 days from the day of making the complaint

9.8. The Guarantor shall establish the detailed terms and conditions of guarantee in the Guarantee Card. The buyer signs the conditions, which is proof of accepting the conditions and results in concluding the relevant agreement by the parties.

9.9. Should the device be resold during the guarantee period, the guarantee rights shall be transferred to the new buyer. The user shall lose the guarantee rights in the following cases:

- if any entries or corrections are found to have been made in the Guarantee Card by an unauthorised person
- if the Guarantor or the Seller finds that any alterations and/or adjustments have been made which are not provided for in the operation manual, if the tools were used after the defect became visible.

Complaint procedure:

1. If a complaint is made, the user has to deliver the faulty device together with this Guarantee Card, a copy of the purchase receipt and a short description of the defect, in the original package.
2. The user shall deliver the faulty product at his own cost and risk to the place of purchase or to the authorized service of ERKO.
3. The user declares that he will deliver the clean and complete device.
4. If the complaint is accepted, ERKO shall deliver the repaired device to the original place of purchase or, if agreed upon, to another location, at its own cost.

10. WARRANTY CARD

* Seller stamp		* Sales date, stamp and signature	
* Equipment Name/Type	* Serial number	*KJ	
Hydraulic hand press type HRZ 300			

* The guarantee card is valid only if the marked fields are filled in!

GUARANTEE REPAIRS

Date of the acceptance for the repair	Date of the repair	Description of the repair, replaced parts	Stamp of service, signature

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ul. Hanowskiego 7; 11-042 Jonkowo
Tel./fax +48 89 512 92 73
e-mail: sprzedaz@erko.pl, <http://www.erko.pl>

* I have read the terms and conditions of the guarantee

.....
Customer's signature