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MANUFACTURE OF DRYING EQUIPMENT AND ACCESSORIES FOR SCREEN PRINTING

SERVICE MACHINES AND EQUIPMENT FOR SCREEN PRINTING

TECHNICAL DATA SHEET

&

MANUAL

FLASH CURE MODELS X4050, X5050, X5070, X6090

BIELSK PODLASKI, January 2023

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BEFORE PLUGGING THE POWER CORD PLEASE CHECK THE CORRECTNESS OF CONNECTION PHASE WIRE AND NEUTRAL WIRE IN THE SUPPLY SOCKET

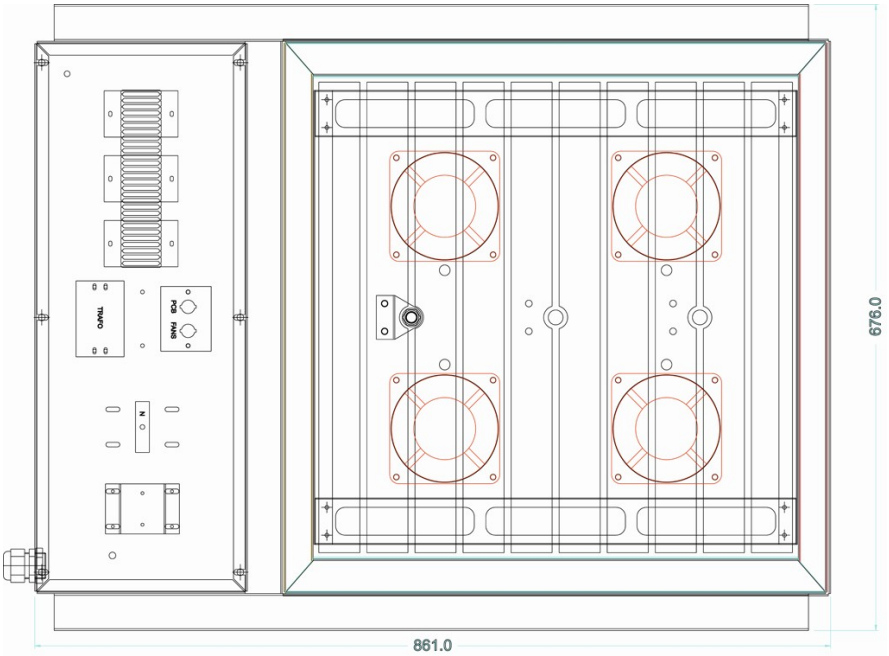
SEE ELECTRICAL POWER DIAGRAM OF MACHINE

1. TECHNICAL DESCRIPTION

1.1.Using condition.

Construction:

- for working with manual rotary machine and automatic rotary press,
- 3 horizontal heat zones, all possible combination of ON/OFF state,
- medium wave quartz glass lamps, with X502 cap,
- fan blowers,
- Digital time and power control with zero – ON, zero – OFF voltage synchronization
- lamp characteristic: power - 1500W; luminous flux 4-5 lm/W; color temperature 2100°K.
- Galvanic separation IN - OUT



drw.1: X5050 outside dimensions

X4050:
Power requirements: 3 - phase, 400V, 50-60Hz,
Maximum power consumption: 9 kW,
The qty of heating lamps: 9,
Heating area: 40x50 cm,

X5050:
Power requirements: 3 - phase, 400V, 50-60Hz,
Maximum power consumption: 13,5 kW,
The qty of heating lamps: 9
Heating area: 50x50 cm,

X5070:
Power requirements: 3 - phase, 400V, 50-60Hz,
Maximum power consumption: 18 kW
The qty of heating lamps: 12,
Heating area: 50x70 cm,

X6090:
Power requirements: 3 - phase, 400V, 50-60Hz,
Maximum power consumption: 18 kW
The qty of heating lamps: 15,
Heating area: 65x90 cm,

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1.2.Technical data:

1.2.1.Input data:

- Turn-off voltage	15-24 VDC;

1.2.2.Output data:

- output PCB-1	24 VDC;
- voltage(Uz)	400 VAC

1.2.3. Galvanized separation:

- optoelectronic,

1.2.4. The data SSR Output stage:

- output signal	type OC
- switching voltage	400 VAC
- load current In	X4050 – 7,5A/phase, X5050 – 11,25A/phase, X5070 - 15A/phase, X6090 – 15A/phase

1.2.5. Normal condition of use:

- operating temperature	-25°C...+80°C,
- relative humidity	30...80%,
- pollination	undefined,
- position of work	horizontal,
- concentration of active components in atmosphere	lack of aggressive components,

1.2.6. Conditions of transportation and storage:

- storage temperature	-25...+85°C,
- relative humidity	to 95% at 40°C,
- storage and transport position(with lamps)	horizontal,

1.2.7. Casing:

- type	metal,
- dimensions	see drw. 1,
- protection level	IP 20,

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1.2.8.Weight:

- 31-35kg

1.2.9. Prepare ordering.

X4050BL, X5050BL, X5070BL, X6090BL(blueline) – flash cures dedicated for automatic screenprinting carousels, no stand and no foot pedal or photo sensor, selected communication cable with automatic press included;

X4050RL, X5050RL, X5070RL, X6090RL(redline) – flash cures dedicated for every type screenprinting machines, foot pedal or photo sensor included, stand included;

1.3. Conditions of usage.

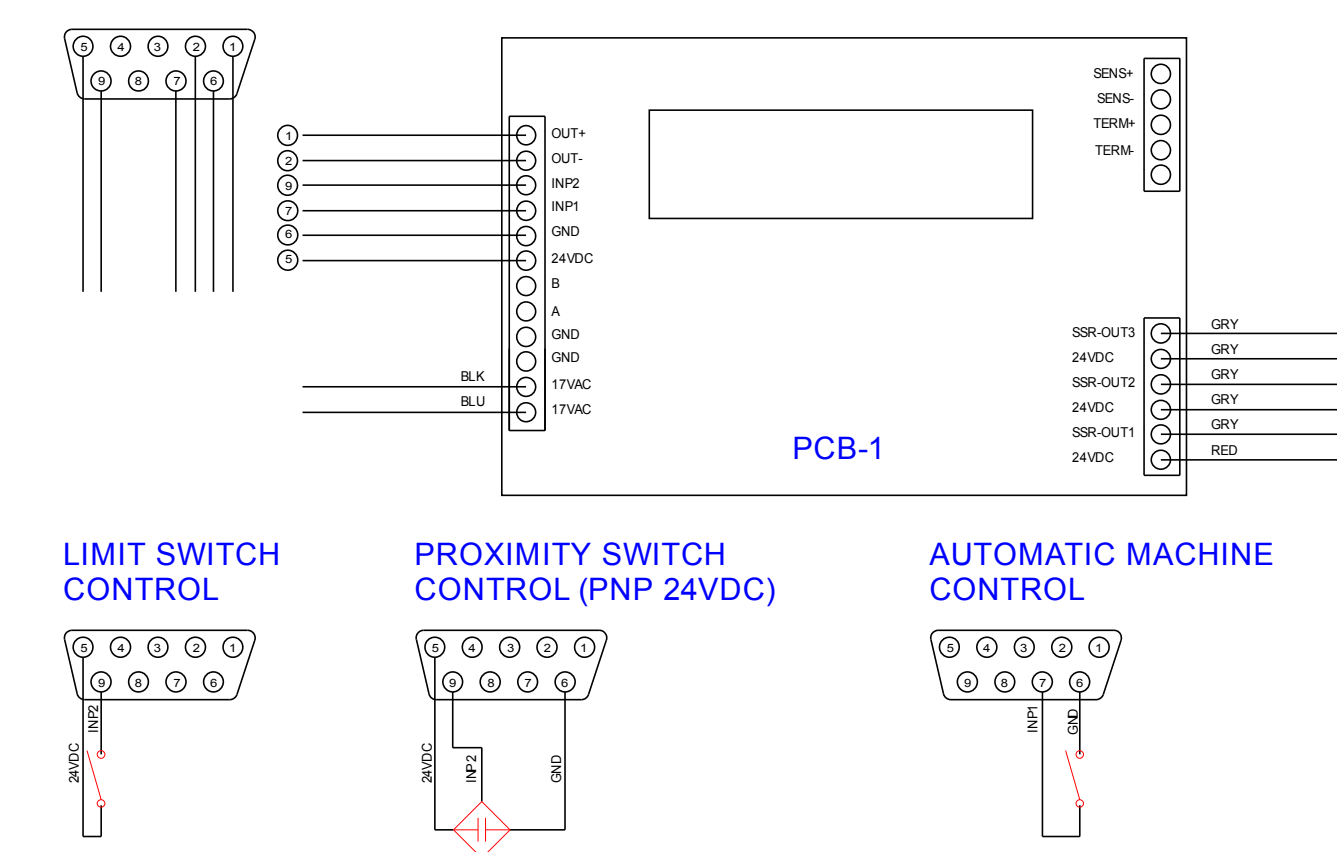
The present manual defines the conditions of usage.

1.4. Description of building and working.

All electronic elements using to control quartz lamps are on PCB-1 board. On the front panel there is membrane keypad to control all functions this machine. The whole be mounted in metal casing.

Electric components consist from:

- main changeover switch,
- the block of fuses preservative the current tracks of fans and with one fuse preservatives the transformer 230/17 VAC feeding PCB-1, marked as FANS and PCB,
- 3 electronic relays(SSR),
- quartz lamps with X502 cap.



drw.2: PCB-1 connections diagram

2. INSTRUCTION OF ASSEMBLY AND EXPLOATATION

2.1. Assemblies-recommendation.

Flash cure should be used according to guidelines.

The arrangement of connections and typical arrangement of work were introduced on drw.2.

Correct connection main power supply in main power distribution box is very important to make failure-free job for all electrical devices used at this flash cure. Complying to factory descriptions marked near clamps of nest you can be sure no one element will breakdown and guard you from electrical shock..

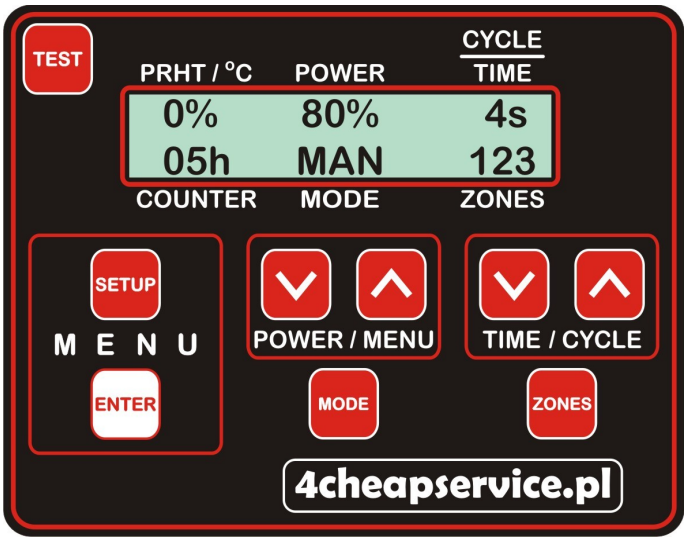
Feeding electrical cable needs to be minimum: X4050, X5050 – 5x2,5mm^2, X5070 – 5x4mm^2, X6090 – 5x6mm^2

2.2. Option description and settings.

1. **PRHT / ºC (LCD):** Indication power in % for PREHEAT function,
2. **COUNTER (LCD):** Indication live of lamp in hours,
3. **POWER (LCD):** Indication of IR lamps power settings in %,
4. **MODE (LCD):** Indication of actual work mode . Flash can work in one of 2 modes: MAN, AUTO,

5. **TIME (LCD):** readings of set TIME,
6. **ZONE (LCD):** readings of active HEAT ZONES. Active zone is indicated with " X " or 123 on LCD display,
7. **SETUP (PUSH BUTTON):** allows to change basic parameters,
8. **ENTER (PUSH BUTTON):** accept changed parameters,
9. **TIME (PUSH BUTTON):** allows to change set time,
10. **POWER (PUSH BUTTON):** allows to change set power level,
11. **ZONES (PUSH BUTTON):** allows to choose combination of working heat zones. 3 ZONES AVALIABLE : 3-3-4 lamps,
12. **MODE (PUSH BUTTON):** allows to choose mode of work,
13. **TEST (PUSH BUTTON):** manual test for heat of lamp with programmed parameters,

2.2.1.Setting TIME and POWER of HEATING



drw.3: Control panel

To change settings for: heat TIME and heat POWER press corresponding Arrows push buttons. New values are automatic stored and memorized.

2.2.2. Setting descriptions

1. **ZONES:** Choice of working HEAT ZONES. Its possible to have any combination of working HEAT ZONES. Each pressing of ZONES push button is indicated on LCD display by 1 2 3 digits . Each HEAT ZONE has corresponding 1 2 3 numbers on LCD display. Presence of 1 2 3 signalize on state of corresponding HEAT ZONE.

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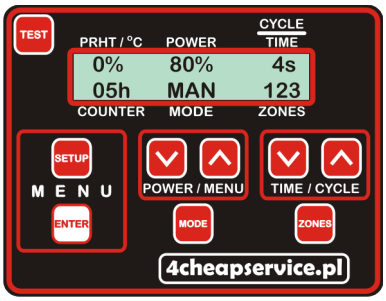
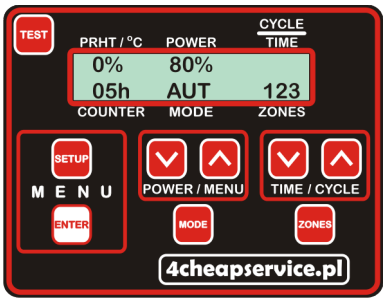
2. **MODE:** Choice of MODE. Its possible to set one of below MODE. Each pressing of MODE push button is indicated on LCD display by changing to next mode in below manner .



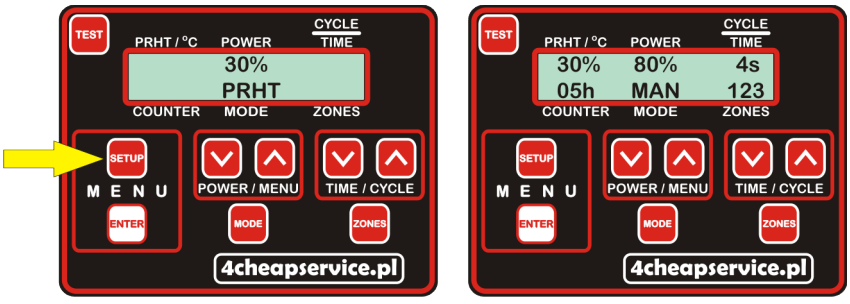
- **MAN**: Starting with external limit switch or proximity switch (see drw.2. for LIMIT SWITCH control and PROXIMITY SWITCH control). POWER regulation and TIME regulation is internal.



- **AUT**: starting with external time trigger (i.e. Rotary automatic machine, see drw.2. for AUTOMATIC MACHINE control) with 12-24VDC output. POWER regulation is internal, TIME is external.

FEATURES MENU AVAILABLE AFTER PRESSING SETUP BUTTON:

- **PRESENT WORKING TIME:** indication of the current time counter working lamps. This type of counter is reset if the factory DEFAULT parameter selection. The maximum range of this counter is 99h.
- **TOTAL WORKING TIME:** an indication of the total counter working lamps from the beginning of the first run. This type of counter can not be reset. This allows you to estimate the life of lamps installed in the device. The manufacturer guarantees 5000 working hours with maintaining the basic parameters.
- **PRHT(PREHEAT):** pre-heating lamp power. Enable this function by selecting a power> 0%. When increase the power to eg. 20% lamps are starting to heat up with this power. After returning to the target drying cycle MAN or AUT, after activating system by the optical sensor or foot switch in MAN mode, followed to heating with target power and time period set for these cycles. After a preset time lamps go on PRHT power level. To disable PRHT - it has to be set power 0% in PRHT mode.



It is recommended to disable the PRHT after work

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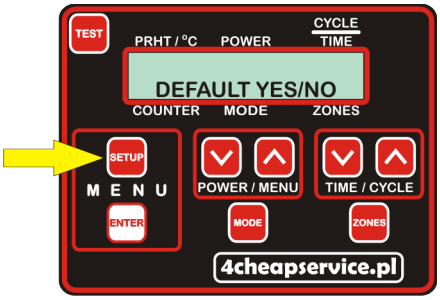
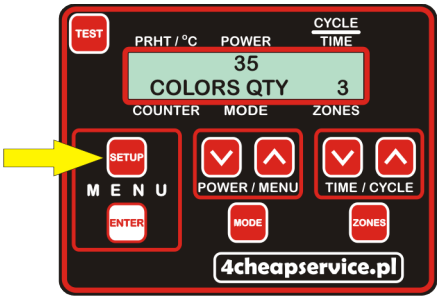
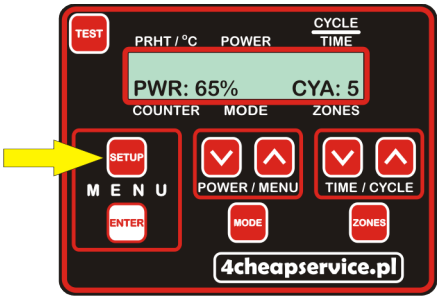
- **DEFAULT:** this function allows you to restore all parameters to the factory settings. This function should be used only in case of of incorrect indications on the LCD, eg. Power: 255% or the time: -236s. This type of false readings caused by disruptions in the power supply, so it has some results in incorrect operation of the processor PCB1 controller. DEFAULT function will activate by changing from NO to YES using the up arrow in the POWER/MENU area and press the button ENTER. After this operation short message “DEFAULT PARAMETERS RESTORED” informs about restore original parameters. These are: POWER- 80%, ZONES- XXX, TIME- 6s, MODE- MAN, PRHT- 0%.



- **HEATING COUNTER:** allows you to count the printouts. For proper operation of this counter should be given the number of colors for drying(COLORS QTY).



- **POWER ADAPTATION**: enables automatic switching of power to a value lower than the set value, after a specified number of pre-drying. This function includes two parameters to be set: PWR - target power, CYA - number of pre-drying cycles, after which the main power will be switched to the PWR value.



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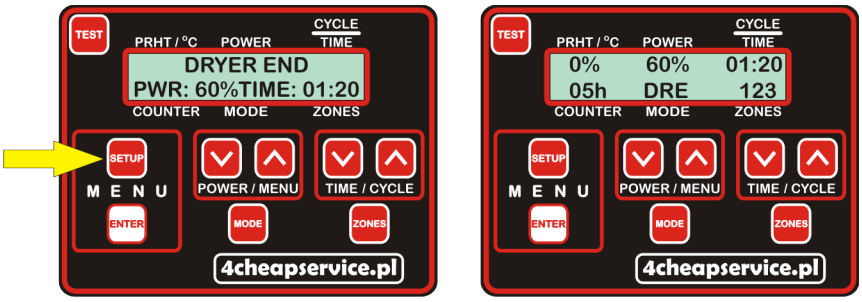
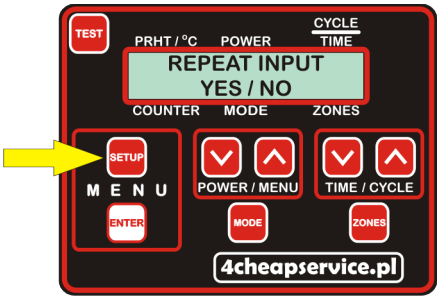
- **DRYER END**: final drying function. It contains two parameters to set - PWR (power) and TIME (time). After changing these parameters to greater than "0", it is possible to select an additional DRE operating mode. The selection is possible from the keyboard of the control panel with the MODE button or by activating an external button.

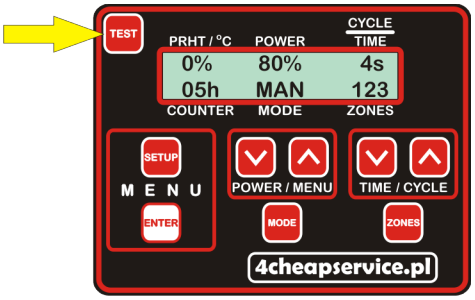


- **REPEAT INPUT**: this function only works in MAN mode. It is used to enable / disable the repeatability of the control input (optical sensor) after the set heating time flows.



3. TEST: manual test of flash, respecting all settings(works only for MAN mode):

ZONES – MODE – POWER – TIME



2.3. Safety rules

All warnings and cautions in the Operating Instructions and on the unit should be strictly followed, as well as the safety suggestions on it. Avoid **overloading** AC outlets and extension cords beyond their capacity, as this could result in fire or shock.

Objects and liquid entry - Take care that objects or liquids do not get inside the unit through the ventilation openings

! IT IS RECOMMENDED TO PERIODICALLY CLEAN THE FANS AND SPACE BETWEEN REFLECTORS IN ORDER TO MAINTAIN PROPER AIRFLOW. !

THE SIMPLEST WAY IS TO USE COMPRESSED AIR.

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3. STORING AND TRANSPORTATION

3.1.Storing.

Equipment needs to be store in close room free from aggressive factors making corrosion in temperature 0°C to 70°C and humidity close 80%. Please protect from vibrations and shocks.

3.2.Transport.

In case the flash needs to be in transport please do it by cover car and protect from move it in.

4. LIST of DRAWINGS.

Drw.1. Flash Cure X5050 - dimensions.
Drw.2. PCB-1 connections diagram.
Drw.3. Control panel.

5. DIAGNOSIS AND REPAIR OF POTENTIAL PROBLEMS.

No illumination and indications on LCD display – dryer not working,	- check the fuse in the fuse holder described as PCB, - check the fuse in the fuse holder(green) on the transformer 230/17VAC,
Poor or No indications on LCD display – dryer working,	- the LCD display's backlight has failed, - recommendations - replacement of the LCD display,
Lamps do not lit after activation with an optical sensor or the foot switch	- do the test operation of the device by pressing the TEST button. If the device is working properly by pressing the TEST button, check the connection of an optical sensor or foot switch socket described as EXTERNAL CONTROL on the back of the electrical box, - contact the manufacturer to obtain additional information: cheapservice4u@4cheapservice.pl,

RECOMMENDATIONS FOR THE CORRECT USE OF FLASH CURE UNITE

1. Ensure proper air flow through the blowing fans by regularly cleaning or replacing the filters.
2. After 6-12 months from purchase, it is recommended to check the lamp fixing screws and tighten them if necessary. The possibility of loosening of the bolt pressure is related to the high temperature in the area of the lamp holders.
3. **For long-term and trouble-free operation of the device, it is recommended to place the optical sensor as high as possible in relation to the bottom surface of the dryer. Due to the high temperature of the lamps, the plastic housing of the sensor and electronic components inside can be damage.**

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Manufacturer's declaration for Flash Cure

The manufacturer 4cheapservice.pl declare with full responsibility that the flash cure models X4050, X5050, X5070 to which this declaration relates meets the requirements:
- Complies with the essential requirements for health and safety,
- Compliance with applicable harmonized standards Directive 98/37 / EC:

Norm No	Designation	No of PN (if exists) or No of KT expected the year of approval PN
EN 292-1:1991	Machinery-Safety - Basic concepts, general principles for design. Basic terminology, methodology	**PN-EN 292-1:2000**
EN 294:1992	Safety of machinery Safety distances to prevent upper limbs reaching danger zones	**PN-EN 294:1994**
EN 349:1993	Machinery Safety Minimum gaps to avoid crushing	**PN-EN 349:1999**
EN 418:1992	Safety equipment Emergency stop equipment, functional aspects Principles for design	**PN-EN 418:1999**
EN 547-1:1996	Safety Equipment dimensions of the human body Principles for determining the dimensions required for openings for whole body access to the machine	**PN-EN 547-1:2000**
EN 547-3:1996	Safety equipment Human body measurements Anthropometric data	**PN-EN 547-3:2000**
EN 563:1994	Machinery - Safety - Temperatures of touchable surfaces Ergonomics data to determine the temperature limit values for hot surfaces	**PN-EN 563:2001**
EN 614-2:2000	Machinery - Safety - Ergonomic design principles - Part 2: Interactions between the design of machinery and work tasks	**PN-EN 614-2:2002**
EN 894-1:1997	Safety - Ergonomics requirements for the design of displays and control actuators - Part 1: General principles for human interactions with displays and control actuators	**PN-EN 894-1:2002**
EN 894-2:1997	Machinery - Safety - Ergonomics requirements for the design of displays and control actuators - Part 2: Control Indicators	**PN-EN 894-2:2002**
EN 894-3:2000	Machinery - Safety - Ergonomics requirements for the design of displays and control actuators - Part 3: design of displays and control actuators	**PN-EN 894-3:2002**
EN 953:1997	Machine Security Guards General requirements for the design and construction of fixed and movable covers	**PN-EN 953:1999**
EN 954-1:1996	Machinery - Safety - related parts of control systems with safety - Part 1: General principles for design	**PN-EN 954-1:2001**
EN 999:1998	Machinery - Safety - positioning of protective equipment due to the approach speed of human body parts	**PN-EN 999:2002**

EN 1005-1:2001	Machinery - Safety - Human physical performance - Part 1: Terms and Definitions	**PN-EN 1005-1:2002**
EN 1005-3:2002	Machinery - Safety - Human physical performance - Part 3: Recommended force limits for machinery operation	**PN-EN 1005-3:2002**
EN 1032:1996	Studies machines for overall vibration emission assessment - General requirements	**157 / 1998**
EN 1037:1995	Machinery Safety Prevention of unexpected start	**PN-EN 1037:2001**
EN 1050:1996	Machinery Safety Principles for risk assessment	**PN-EN 1050:1999**
EN 60204-1:1997	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	**PN-EN 60204-1:2001**
EN 61310-1:1995	Safety of machinery Indication, marking and control. Requirements for visual, auditory and tactile signals	**PN-EN 61310-1:2000**
EN 61310-3:1999	Safety of machinery Indication, marking and actuation - Part 3: Requirements for the location and operation of controls	**PN-EN 61310-3:2002**

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