

UNIVERSAL

STENCILING & MARKING SYSTEMS

OWNER'S MANUAL

KORTHO-D HOT QUICK CODER

INSTALLATION - OPERATION - MAINTENANCE



KORTHO HQCD-100 HOT QUICK CODER



HQCD-100 HOT QUICK CODER
WITH BENCH MOUNT STAND - 12" X 18"

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HQCD-08127

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PREFACE

The Kortho Hot Quick Coder can be used on almost any material and surface. Whether you make 10,000 or 100,000 prints a day, the Kortho Hot Quick Coder offers the perfect solution for a variety of coding applications. The unit accommodates up to three lines of text in a maximum printing area of 12 x 24 mm. The unique spring-loaded jumping head, with its “butterfly touch”, allows you to make perfect prints on moving products.

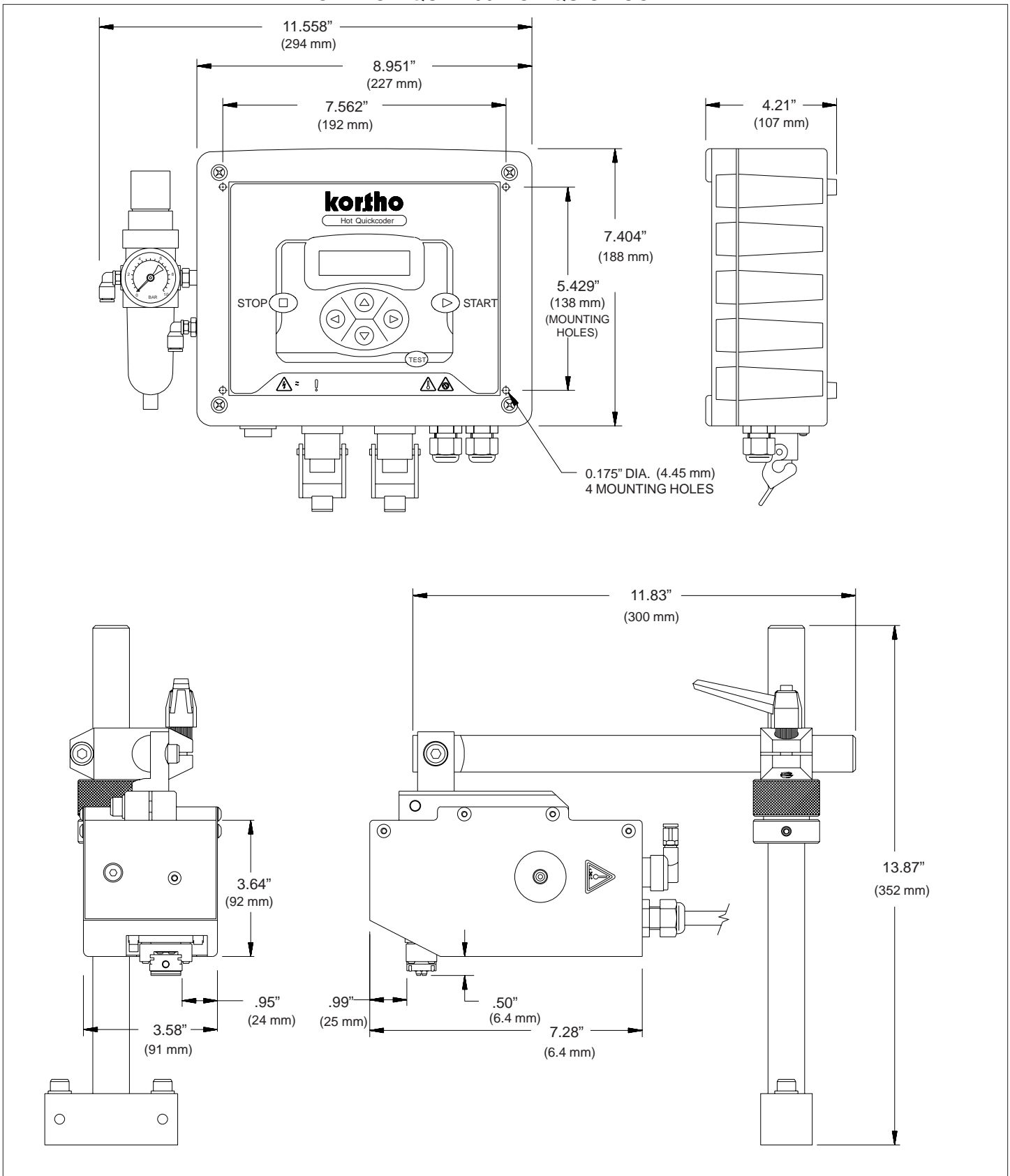
The Kortho Hot Quick Coder utilizes hot ink technology to provide clean, sharp, nearly instant dry impressions at a high rate of speed. Ink rolls, which are dry to the touch at room temperature, are preheated prior to use in the self-contained heating system. When hot, the ink in the roll becomes fluid and is then ready for operation. During production, a spare roll can be stored in the unit’s preheat chamber to keep it ready for immediate use. Ink rolls are available in black, white, red, yellow, green & blue and are supplied in convenient six-pack boxes.

CODER SPECIFICATIONS

The specification section includes a drawing of the Hot Quick Coder with the basic dimensions, the net weight, print area, max printing & product speed, electrical specifications & working pressure.

SPECIFICATIONS

KORTHO HQCD-100 HOT QUICK CODER



Print Area: 0.472" X 0.945" - (12 x 24 mm)
Printing Speed Max: 300 Prints/min.
Product Speed Max: 196 Ft./min. - (60m/min.)
Working Pressure: 56 PSI - (4 bar)

Electrical: 110-130 VAC/1 A.
Electrical: 220-240 VAC/0.5 A.
Coder Weight: 3.75 Lbs. - (1.7 Kg.)
Control Weight: 4.41 Lbs. - (2 Kg.)

1 - GENERAL INSTRUCTIONS BEFORE USE

The KORTHO, Hot Quick Coder was manufactured to exacting standards and every available step has been taken to assure your complete satisfaction. It is most important, however, that the instructions contained in this manual are read and carefully followed for best results. Failure to do so may result in unsatisfactory performance, damage to the equipment and personal injury. Read through this user's manual carefully before putting the Hot Quick Coder into use for the first time. Follow the order indicated precisely when carrying out any of the actions described in this manual.

Pay particular attention to all stated warnings!

1.1 Liability

KORTHO accepts no liability for damage resulting from the improper or uninformed use of the equipment or caused by maintenance or other work being carried out improperly. They also accept no liability for the normal wear-and-tear of the product.

1.2 Life Span

The life span of the equipment is five years with normal use and compliance with the indicated maintenance periods. The life span can be negatively influenced by improper/uninformed use of the equipment or improper maintenance, repair or modification. No claims for guarantee or compensation for damages will be accepted in such instances. The Hot Quick Coder does not contain any harmful substances or materials and can be scrapped or recycled at the end of its life span. The Ink Rolls should be treated as small chemical waste.

N.B. The above statement is based on the legislation in force as at mid 1995.

1.3 Intended Use

The Hot Quickcoder-D printers are industrial printers and are designed to print directly on substrates.

Normal use means use under normal conditions as described in this manual.

The printer may not be used in areas, which have a fire or explosion hazard.

1.4 Environment

The environment in which the Hot Quick Coder may be installed must comply with a number of requirements relating to humidity, temperature and vibrations.

The relative humidity should be between 10 and 90% (non-condensing).

The ambient temperature should be between 41 and 113°F.

The Hot Quick Coder may not be used in any areas having a fire or explosion hazard.

The Hot Quick Coder should be installed in a low vibration location.

1.5 Operational Personnel

Operators are qualified when they have read and understand this manual. A specific preliminary training is not required.

Technicians that carry out repairs and technical maintenance on the printer equipment should have secondary technical education or comparable technical level of knowledge through practical experience.

Installation or servicing of the printer must only performed by qualified personnel of Korthofah BV or a local distributor, which is designated by Korthofah BV. For customer installations authorisation must be obtained from Korthofah BV or a local distributor, which is designated by Korthofah BV.

2 - GENERAL INTRODUCTION

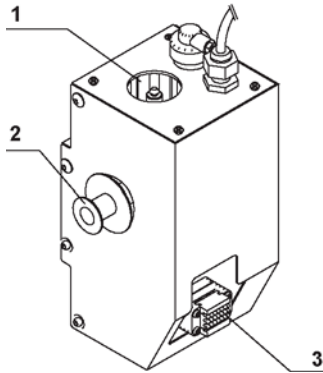
The Hot Quick Coder (henceforth **HQC**) has been developed to apply small texts of one to three lines (max. line length 25 mm) on a production line. The applications vary from loose products to a continuous product (e.g. packaging film).

The text can be applied to a stationary or a moving product. The maximum permitted product speed is 195 Feet/min. approx. 250 impressions per minute can be produced.

! WARNING:

After using the HQC, it cannot simply be deactivated. For the correct procedure read section 8 "Deactivating the Hot Quick Coder"

2.1 The Hot Quick Coder

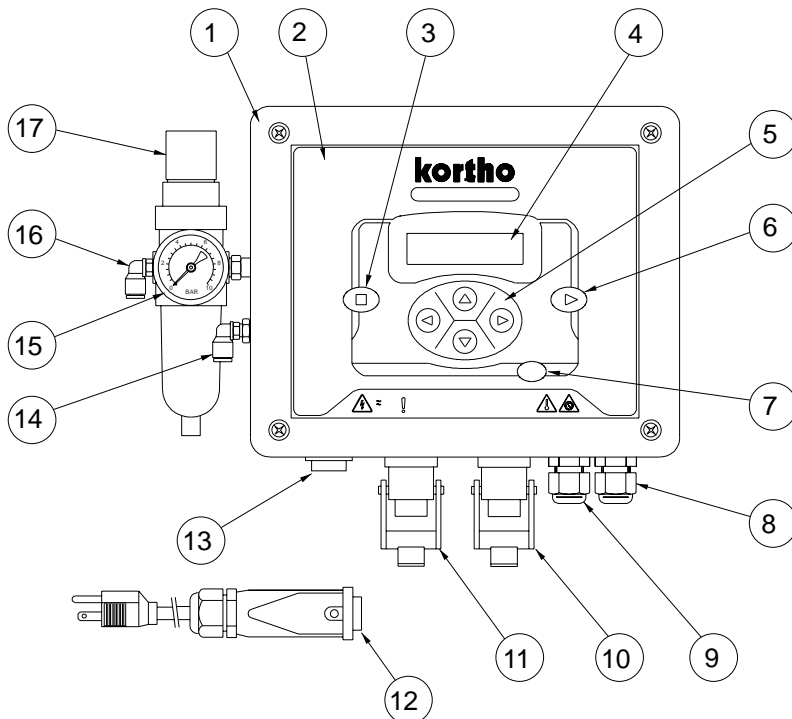


- 1 Preheating
- 2 Ink Roll
- 3 Text head

The code to be printed is applied to an exchangeable text head via text characters or blocks. The text head is inked with a Ink Roll which only delivers the inked (wax-based) at high temperature. The Ink Roll is kept at temperature in the heating ring of the HQC.

2.2 The Control box

A good print quality is achieved with a correct combination of stamping time, stamping pressure, temperature of the text head and the setting of any counter-pressure plate.



- 1. Control box
- 2. Control panel
- 3. Stop Key
- 4. LCD display
- 5. Cursor keypad (up, down, left, right)
- 6. Start key
- 7. Test key
- 8. strain relief
- 9. strain relief
- 10. Printer connection
- 11. Supply connection
- 12. power cord
- 13. Power switch
- 14. Printer fitting
- 15. air gauge
- 16. Supply pressure fitting
- 17. air regulator

2.2.1 Print Cycle

The purpose of the printer is to print an image on a substrate.

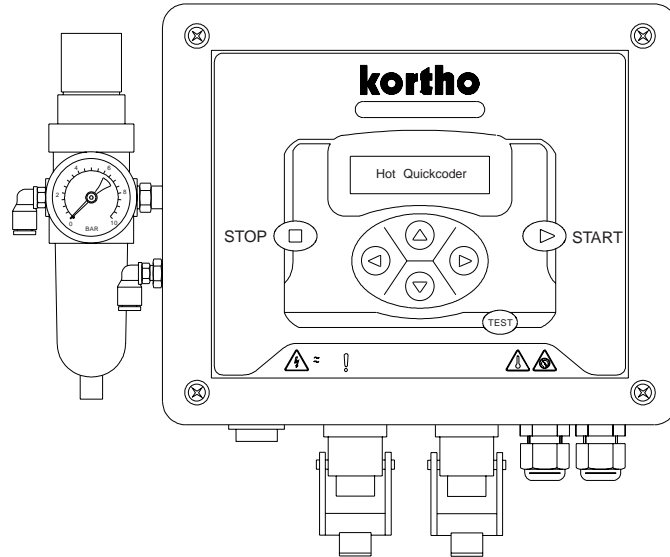
The print cycle is initiated with a trigger signal. This trigger must be generated by a host machine or a photocell, which detects the product or special mark on the substrate.

2.2.2 User Interface

The user interface consists of two parts, the control panel and the menu structure of operator menus.

2.3 The Control Panel

The Control box contains a Control Panel with which specific functions can be performed such as switching the HQC on and off and setting the print parameters. The Control Panel can also be used to issue a test print signal.



The cursor keys positioned below the LCD display on the control panel are used to navigate through the control box's screen menus.

Three command keys, STOP, START and TEST are provided.


The STOP key sets the printer in the stop-mode. In stop-mode the printing is stopped and "STOP" is displayed on the LCD-display.


The START key sets the printer in run-mode and "RUN" is displayed on the LCD-display. The printer now accepts trigger pulses from the host machine, if the alarm is not set.


The TEST key is only enabled in stop-mode. Press this key to make one test print. A test print will only be made if the alarm signal is not set.

2.3.1 Indicator Icons

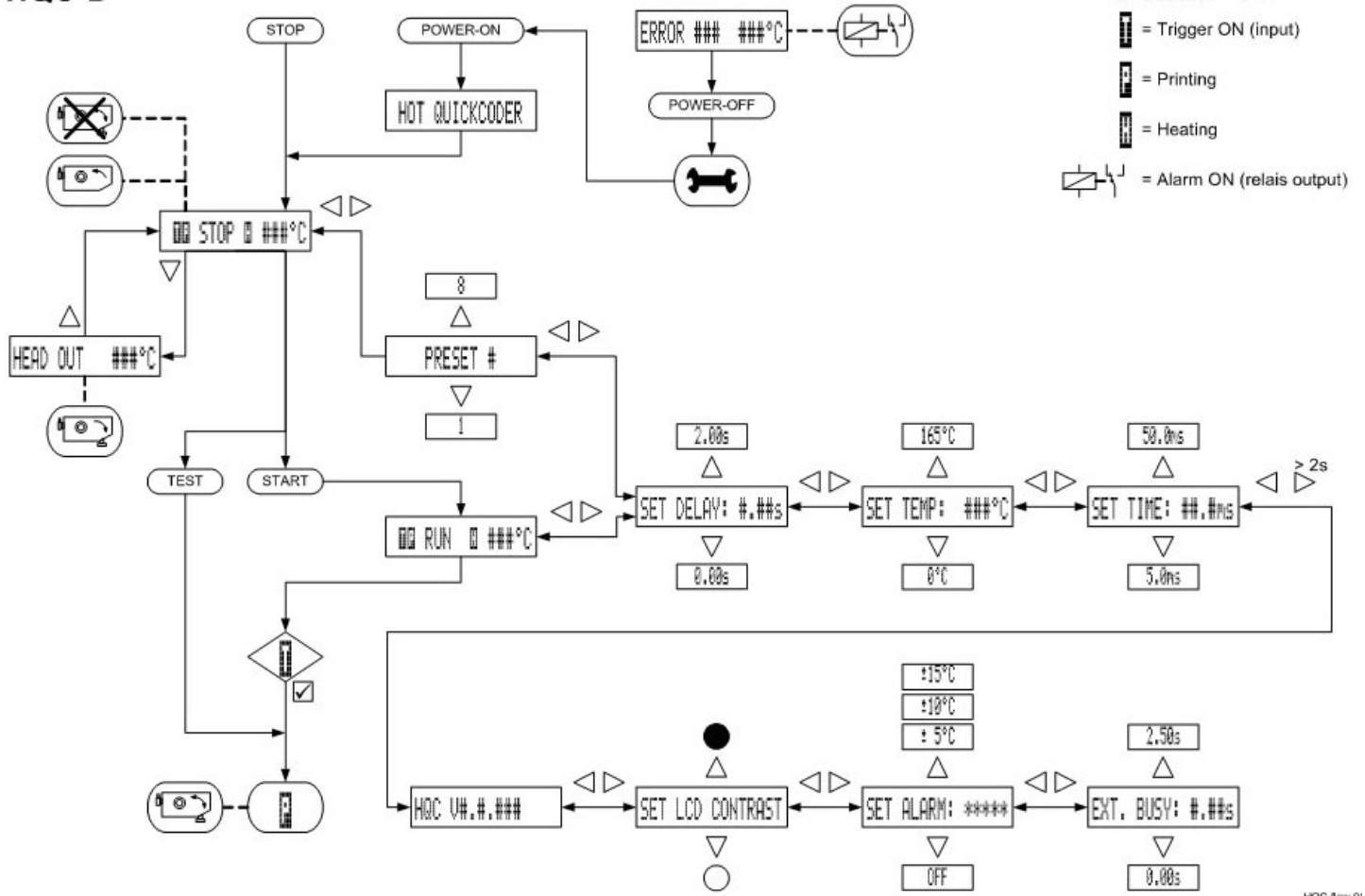
The Indicator icons on the LCD display, are provided to show the status:

 T-icon: Indicates that the trigger input is set. And in RUN mode the print cycle will start.

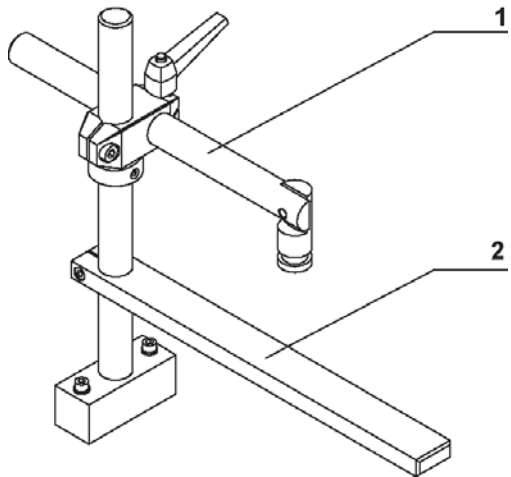
 P-icon: Indicates that the printer is printing.

 H-icon: Indicates that the heating elements are switched on. This icon is flashing until the set temperature is reached.

HQC-D



2.4 The support arm



- 1 Support arm
- 2 Counter-pressure plate

The support arm is used to position the HQC and any counter-pressure plate in relation to the product to be printed.

The support arm is suitable for moving the HQC to any position.

The exceptionally short stamping time makes it possible to print directly onto a moving product without further modifications.

3.1 General Safety Measures

This product is designed to conform to all current directives, and their relevant harmonized standards, of the European Council. It is important that the precautions indicated in this manual are strictly followed.

CE Machinery Directive (98/37/EC)

EN 292-1:1991 Safety of machinery - Basic concepts, general principles for design - Part 1 :Basic terminology, methodology.

EN 292-2:1991EN 292-2/A1:1995 Safety of machinery - Basic concepts, general principles for design - Part 2 :Technical principles and specifications (with Amendment 1).

EMC Directive (89/336/EEC)

EN 55022 :1998EN 55022/A1:2000EN 55022/A2:2003Information Technology Equipment - Radio disturbance characteristics. Limits and methods of measurement (with Amendment 1).

EN 55024 :1998

EN 55024/A1:2001

EN 55024/A2:2003 Information Technology Equipment - Immunity characteristics. Limits and methods of measurement (with Amendment 1).

EN 61000-3-2:2000 Electromagnetic compatibility.

(EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)(with Amendments 1 and 2).

EN 61000-3-3:1995EN 61000-3-3/A1:2001 Electromagnetic compatibility.

(EMC) - Part 3-3: Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current 16 A per phase and not subject to conditional connection

Low Voltage Directive (72/23/EEC)

EN 60950-1:2000 Safety of information technology equipment

3.1.1 Power supply



~ 220 / 240 V

~ 110 / 130 V

50 / 60 Hz

For safe operation, the power cable to the control box must be connected to a properly grounded single-phase supply of the appropriate voltage. The power supply must comply with the power supply information that is written on the serial-number label (located on the back of the control box).

Verify that no significant potential difference exists between the single-phase ground supply of the printer and the frame ground of the host machine.



Note:

All external equipment that is connected to the control box interface must be double insulated to qualify the whole installation as a separated extra-low voltage (SELV, Class II) system.

The wire colour code for the supply cable is: BROWN for Line (L)
 BLUE for Neutral(N)
 GREEN/YELLOW for Protective Earth (PE)

When installing or servicing the equipment ensure that the host machine is stopped.

3.1.2 Precautions before power-up

Check at every printer power-up if all these connections are secured:

1. The mains power plug. (X1).
2. The printer cable. (X2).
3. The cable/conduit (X3/X4) between the control box and the coding unit.

3.1.3 Precautions when opening the control box



WARNING:

- **ALWAYS** disconnect the power to the printer before removing any connectors or covers.
- Switch the printer off.
- Remove the plug from the mains power supply.
- **DO NOT** operate the printer when any cover is removed.
- **DO NOT LEAVE** tools, screws or other parts inside the control box when re-assembling the equipment.

3.1.4 Anti-static precautions

The printed circuit boards are static sensitive devices, which can be damaged if they are touched without the necessary electrostatic discharge (ESD) precautions being taken. The ESD precautions involve the use of a grounded wrist strap and/or conductive work mat.

During installation, servicing and handling of the printed circuit boards, the printed circuit boards must be protected from electrostatic discharges.

3.2 Explanation of attached stickers

Various warning symbols are attached to the Hot Quick Coder.
Here is an explanation of the symbols on the stickers.



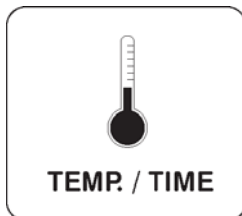
General danger



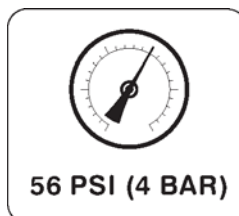
Danger due to high temperature



Danger due to high voltage parts



Coding unit remains hot for awhile after use



Maximum adjustable pressure



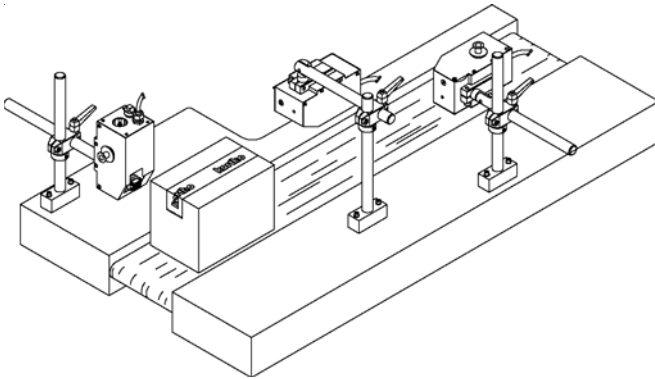
Voltage requirements

~ 220 / 240 V
~ 110 / 130 V
50 - 60 Hz

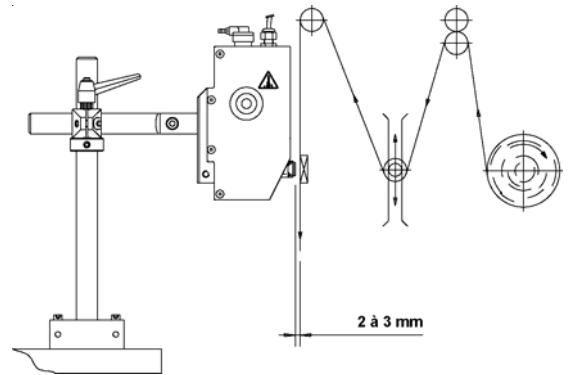
4 - INSTALLATION OF THE HOT QUICK CODER

4.1 Assembly instructions

Options for coding products



Options for coding lengths of film



During assembly ensure that sufficient space is left around the coder to replace the Ink Roll and to change the text head. If necessary, set up the coder so that it revolves. The dimensional sketches are included in Appendix D.

1. Mark the desired position of the holes for assembling the support (2.75" C-C). When determining the position, take account of the fact that the text head (in the marked position) should ultimately be located approx. 5/64" - 1/8" from the product surface to be printed (figure 7b).
2. Drill the mounting holes for the support (diameter 17/64").
3. Assemble the support with 1/4" bolts (x2).
4. Fix the coder to the support.
5. Mark the desired position of the holes for assembling the Control box.
6. Drill the mounting holes for the Control box (3/16" diameter).
7. Assemble the Control box with #8 Screws and nuts (x4).

4.2 Connection instructions

! WARNINGS:

Before opening the control of the Hot Quick Coder, it should first be disconnected from the power. This is done by removing the main power cable from the Control box.

Only a GROUNDED cable may be used for connecting the equipment

1. Disconnect the printer from the voltage by removing the main power cable from the Control Box.
2. Open the Control box.
3. Check that the desired power supply is set correctly. (see appendix C).
4. Connect a sensor to supply the print command. The connection points and settings of the switch and jumpers are given in appendix C.
5. Connect the power and control cable to the coding part.
6. Connect the Control box to the compressed air supply (setting approx. 58 psi) via the reducing valve.
7. Connect the HQC to a **grounded** connection.

4.3 Requirements

Provided by the customer:

- Power: 115 or 230VAC, 50-60Hz (see fig. 4.1 for total power consumption).
- A trigger-signal output of the host machine (print).
- Sufficient space for installation and operation.

Optional:

- A stop-signal input of the host machine (printer alarm).

Name	Type	VA (max)
Control box	HQC-D	10
Coding unit	HQC-D	100

Power consumption / type

The total power consumption is the sum of the control box and coding unit consumption.



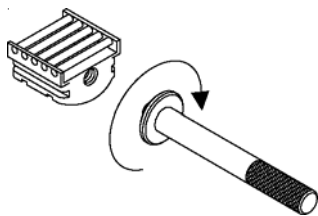
Note:

Refer to Appendix B, 'Connections', 'Electrical diagram I/O' for the connection options.

4.3.1 Fuse values

SW 1	F1	F2	F3	F4
230 VAC	1 AT	1.6 AT	300m AT	500m AT
115 VAC	2 AT	3.15 AT	500m AT	500m AT

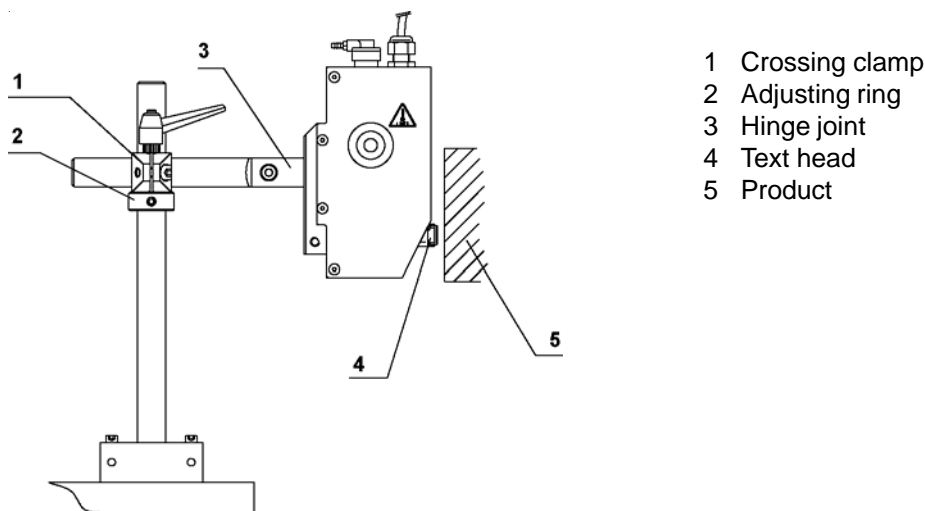
5.1 Applying the text material



The text head has a printing area of 17 x 20 mm or 17 x 25 mm. The printing area has a specially shaped profile. The text characters have the same profile on the reverse. The text characters are applied to the text head with a simple printing movement.

The 'blank space' in the text characters on the same "line" should be completely filled with space characters.

5.2 Adjusting the position of the Hot Quick Coder



The HQC should be positioned such that the text head (5) is located in the position shown 2 to 3 mm from the surface to be coded.

Activate the "HEAD-OUT" button (8) on the Control Panel (see section 5.1). This will fix the text head holder in the outermost position.

Position the text head in the holder (see section 6.1).

Position the Hot Quick Coder so that the text head is located 2 to 3 mm from the surface to be coded.

Lock the crossing clamp (1).

Place the adjusting ring (2) against the underside of the crossing clamp.

Adjust the hinge joint (3) so that the product will be coded **evenly**. If necessary, reset the height.

Activate the "HEAD-IN" button (7) on the Control Panel (see section 5.1). The text head moves in.

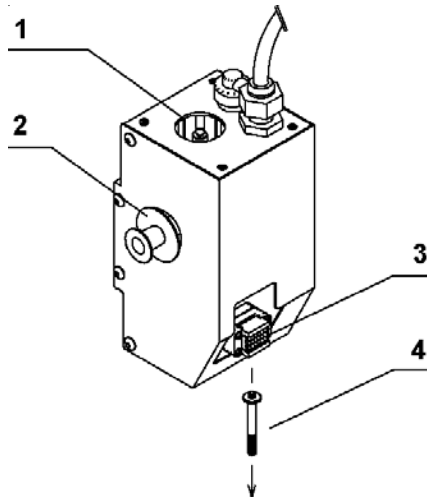
A fine adjustment is available as an option. This can be used to adjust the distance to the product simply and accurately.

! WARNINGS:

Failure to observe the requisite heating up time of ± 15 mins. leads to irrevocable damage to the text material and the Ink Roll!

Failure to remove the handle from the text head can damage the HQC.

5.3 Preparation for use



- 1 Preheating chamber
- 2 Coding part
- 3 Text head holder
- 4 Handle

1. Take the text head and prepare it for use by applying the desired text material (see section 5.2).
2. Connect the system to the Control box by pressing the ON button.
3. Activate the HEAD-OUT button on the Control Panel (see section 5.1). This fixes the text head in the outermost position.
4. Place the text head in the text head holder.
5. Remove the handle (4) by twisting it out of the text head.
6. Place a Ink Roll in the coding part (2) of the HQC; the cartridge must be pushed in until it clicks.
7. Activate the HEAD-OUT button on the Control box (see section 5.1).
8. Set the temperature adjustment on the Control box (section 5) to position 8 which sets the temperature to approx. 275°F.
9. Take account of 15 to 20 minutes' heating up time.
10. Activate the START button on the Control box (see section 5.1).
11. Activate the supply of products.
Adjust the print quality further in accordance with the instructions in section 6.2.
13. Place a Ink Roll in the preheating chamber (1). This heats up a new Ink Roll during production so as to avoid undesirable loss of production.

6 - OPERATION OF THE HOT QUICK CODER

This part describes the functions and procedures for operating the printer.

6.1 Powering up

1. Check by visual inspection for damage of the printer.
2. Check if all of the relevant cables are connected.
3. Switch the control box on. The program boots while the printer type is displayed.

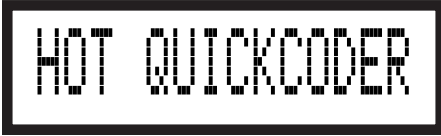


Fig. 5.1 Firmware for Printer type message

4. After 3 seconds the Stop mode menu appears.

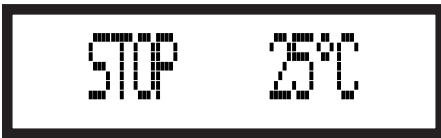


Fig. 5.2 STOP MODE menu

5. Proceed with step 10, if the parameters does not have to change.

Press the RIGHT ARROW to browse through the parameters and alter the desired parameter. Refer to section 5.3.

Parameter / message screens' and Appendix C, 'Quick reference'.

The parameter browse sequence is:

PRESET, SET DELAY, SET TEMP, SET TIME,
FIRMWARE message, SET LCD CONTRAST, SET ALARM, EXT.BUSY.

6. Press the STOP key to return to the STOP MODE menu.
7. Press the TEST key to make a test print.
8. Check the print quality and change the SET TIME and/or SET TEMP parameter if necessary (step 5).



Note:
The print pressure is also important for the print quality.

9. Press the START key to enter the RUN MODE menu.

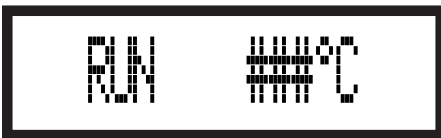


Fig. 5.3 RUN MODE menu

Press the RIGHT ARROW to browse through the parameters and alter the desired parameter while in run mode. Refer to section 5.3, 'Parameter / message screens' and Appendix C, 'Quick reference'.

The parameter browse sequence is:

SET DELAY, SET TEMP, SET TIME,
FIRMWARE message, SET LCD CONTRAST, SET ALARM, EXT.BUSY.

10. Press the STOP key to stop printing and enter the STOP MODE menu.

6.2 Printer mode

6.2.1 Stop mode

This menu is accessible from any screen (except error) by pressing the STOP key.



STOP MODE MENU, with all possible indicator icons

In this mode the trigger signal will be ignored, but a TEST key press will make a test print. The current temperature is represented by ### °C


Press button:


RIGHT ARROW: to shift to the PRESET LIST.


TEST: to make a test print.

START: to enter the RUN MODE MENU, the printer is now standby.

In this mode the following indicator icons can be displayed:

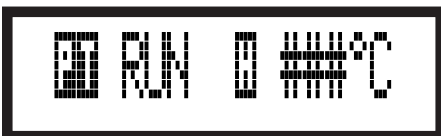
 T-icon: Indicates that the trigger input is set (in this mode the trigger signal will be ignored).

 P-icon: Indicates that the printer is printing (in this mode only by pressing the TEST key).

 H-icon: Indicates that the heating elements are switched on. This icon is flashing until the set temperature is reached.

6.2.2 Run mode

This menu is only accessible from the STOP MODE menu by pressing the START key.



RUN MODE MENU, with all possible indicator icons


In this mode the TEST key will be ignored. The current temperature is represented by ### °C.

Press button:


RIGHT ARROW: to shift to the SET DELAY parameter.

STOP: to return to the STOP MODE MENU and stop printing.

In this mode the following indicator icons can be displayed:

 T-icon: Indicates that the trigger input is set (in this mode only by a trigger pulse).

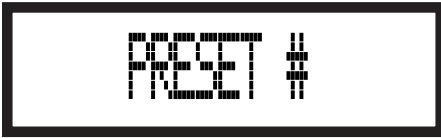
 P-icon: Indicates that the printer is printing (in this mode the TEST key will be ignored).

 H-icon: Indicates that the heating elements are switched on. This icon is flashing until the set temperature is reached.

6.3 Parameter / message screens

6.3.1 Preset list

This list is only accessible from the STOP MODE menu.



PRESET LIST, the active preset is displayed

The printer can store 8 different presets. A preset is a collection of predefined parameter values. The parameter values of the active preset can be altered by changing the desired parameter. The current preset list is represented by #.

Press button:

- UP ARROW: to increase the PRESET LIST number.
- DOWN ARROW: to decrease the PRESET LIST number.
- LEFT ARROW: to shift to the STOP MODE MENU.
- RIGHT ARROW: to shift to the SET DELAY parameter.
- STOP: to return to the STOP MODE MENU.

6.3.2 Set delay

This parameter is only accessible from the RUN MODE menu or the PRESET list



SET DELAY parameter

The SET DELAY parameter delays the print after a trigger signal is received. The delay has a range from 0.00 to 2.00 seconds. The current parameter value is represented by #.##s.

Press button:

- UP ARROW: to increase the parameter value.
- DOWN ARROW: to decrease the parameter value.
- LEFT ARROW: to shift to the PRESET LIST (stop mode) or the RUN MODE MENU (run mode).
- RIGHT ARROW: to shift to the SET TEMP parameter.
- STOP: to return to the STOP MODE MENU and stop printing.

6.3.3 Set temp

This parameter is only accessible from the SET DELAY parameter

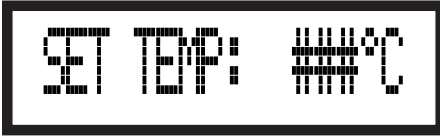


Fig. 5.8 SET TEMP parameter

The SET TEMP parameter is the desired temperature of the print element. The temperature has a range from 0 to 165°C. The current parameter value is represented by ### °C. The recommended temperature setting is 135°C.

Press button:

- UP ARROW: to increase the parameter value.
- DOWN ARROW: to decrease the parameter value.
- LEFT ARROW: to shift to the SET DELAY parameter.
- RIGHT ARROW: to shift to the SET TIME parameter.
- STOP: to return to the STOP MODE MENU and stop printing.

6.3.4 Set time

This parameter is only accessible from the SET TEMP parameter



Fig. 5.9 SET TIME parameter

The SET TIME parameter is the desired print time. The print time has a range from 5.0 to 50.0 milli-seconds. The current parameter value is represented by ##.#ms.

Press button:

- UP ARROW: to increase the parameter value.
- DOWN ARROW: to decrease the parameter value.
- LEFT ARROW: to shift to the SET TEMP parameter.
- RIGHT ARROW: longer than two seconds to shift to the FIRMWARE VERSION message.
- STOP: to return to the STOP MODE MENU and stop printing.

6.3.5 Firmware message

This parameter is only accessible from the SET TIME parameter (press the RIGHT ARROW longer than two seconds).

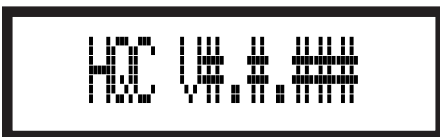


Fig. 5.10 FIRMWARE VERSION message

The FIRMWARE VERSION message shows the printer type and current firmware version. The current version is represented by V#.#.###.

Press button:

- LEFT ARROW to shift to the SET TIME parameter.
- RIGHT ARROW to shift to the SET LCD CONTRAST menu.
- STOP to return to the STOP MODE MENU and stop printing.

6.3.6 Set LCD contrast

This parameter is only accessible from the FIRMWARE message.

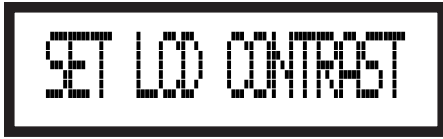


Fig. 5.11 SET LCD CONTRAST menu

In the SET LCD CONTRAST menu the LCD contrast can be changed.

Press button:

UP ARROW: to darken the LCD contrast, keep pressed until the desired contrast is set.

DOWN ARROW: to lighten the LCD contrast, keep pressed until the desired contrast is set

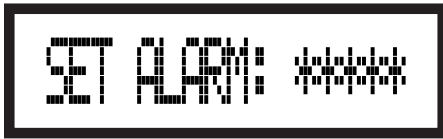
LEFT ARROW: to shift to the FIRMWARE VERSION message.

RIGHT ARROW: to shift to the SET ALARM parameter.

STOP: to return to the STOP MODE MENU and stop printing.

6.3.7 Set alarm

This parameter is only accessible from the SET LCD CONTRAST menu.



SET ALARM parameter

The SET ALARM parameter is the desired temperature alarm setting. The temperature alarm has four possible settings; OFF, $\pm 5^{\circ}\text{C}$, $\pm 10^{\circ}\text{C}$ or $\pm 15^{\circ}\text{C}$. The current parameter value is represented by ****.

The temperature range ($\pm 5^{\circ}\text{C}$, $\pm 10^{\circ}\text{C}$ or $\pm 15^{\circ}\text{C}$) is related to the SET TEMP parameter. If the actual temperature is outside the current temperature range the alarm is set, the printer stops printing and an error message is displayed.

Press button:

UP ARROW: to browse upwards through the settings.

DOWN ARROW: to browse downwards through the settings.

LEFT ARROW: to shift to the SET LCD CONTRAST menu.

RIGHT ARROW: to shift to the EXT.BUSY parameter.

STOP: to return to the STOP MODE MENU and stop printing.

6.3.8 Ext.busy

This parameter is only accessible from the SET ALARM parameter.



EXT.BUSY parameter

The busy signal is not present in the Hot Quickcoder hardware.

The EXT.BUSY parameter extends the busy signal. The extended busy time has a range from 0.00 to 2.50 seconds. The current parameter value is represented by #.##s.

Press button:

UP ARROW: to increase the parameter value.

DOWN ARROW: to decrease the parameter value.

LEFT ARROW: to shift to the SET ALARM parameter.

STOP: to return to the STOP MODE MENU and stop printing.

6.3.9 User settings

Fill in this table with the values found by setting the printer parameters.

Use the table, as a reference, to set the printer parameters when the memory is reset to the default values.

Keep the table nearby, when calling the helpdesk of your local distributor.

FIRMWARE	V . .	PRESET			
PARAMETER	RANGE	1	2	3	4
SET DELAY	0.00 - 2.00s				
SET TEMP	0 - 165°C				
SET TIME	5.0 - 50.0ms				
SET ALARM	OFF, $\pm 5^{\circ}\text{C}$, $\pm 10^{\circ}\text{C}$, $\pm 15^{\circ}\text{C}$				
EXT. BUSY	0.00 - 2.50s	x	x	x	x
PARAMETER	RANGE	5	6	7	8
SET DELAY	0.00 - 2.00s				
SET TEMP	0 - 165°C				
SET TIME	5.0 - 50.0ms				
SET ALARM	OFF, $\pm 5^{\circ}\text{C}$, $\pm 10^{\circ}\text{C}$, $\pm 15^{\circ}\text{C}$				
EXT. BUSY	0.00 - 2.50s	x	x	x	x

Printer parameters

Fill in this table and keep nearby, when calling the helpdesk of your local distributor.

Manufacturer host machine, type	
Control box, serial number	
Coding unit, serial number	
Production plant	
Production line	
Type of substrate (product)	
Production / print rate	Cycles / min
Ambient temperature (min, max)	$^{\circ}\text{C}$ (min) / $^{\circ}\text{C}$ (max)

Printer environment information

7.1 Changing the text head

Texts can be changed particularly quickly by changing the text head.

! WARNINGS:

If the text head is removed during normal operation, it's temperature is approximately 120°C!

Failure to remove the handle from the text head can damage the HQC.

1. Stop the supply of products.
2. Remove the product under (or in front of) the HQC or turn the HQC in its entirety away from the belt.
3. Activate the HEAD-OUT button on the Control Panel.
4. Twist the handle into the text head.
5. Use the handle to extract the text head from the text head holder.
6. Use the handle to position the (new) text head in the text head holder (check for blockages).
7. Twist the handle out of the text head.
8. Activate the HEAD-IN button on the Control Panel. This moves the text head back into neutral position.
9. Allow the new text head to reach operating temperature (approx. 2 minutes).
10. Replace the product under (or in front of) the HQC or turn the HQC in its entirety back towards the belt.
11. Start the supply of products.

7.2 Replacing the Ink Roll

If the print becomes less legible, the Ink Roll should be replaced. Replace the used roll with a roll which has already been brought up to the correct temperature in the preheating chamber of the HQC.

! WARNINGS:

Failure to follow the rules below when replacing an Ink Roll leads to damage to the text material, the Ink Roll and the HQC itself!

The temperature of the text head is approximately 248°F!

1. Activate the STOP button on the Control Panel.
2. Stop the supply of products;
3. Activate the HEAD-OUT button on the Control Panel;
4. Extract the used Ink Roll from the coding part of the HQC;
5. Remove the new Ink Roll from the preheating chamber;
6. Slide the new Ink Roll into the coding part of the HQC; the cartridge must be pushed in until it clicks;
7. Replace the removed product under (or in front of) the HQC;
8. Activate the HEAD-IN button on the Control Panel;
9. Activate the START button on the Control Panel.
10. Restart the supply of products;
11. Place a new Ink Roll in the preheating chamber.

8 - DEACTIVATING THE HOT QUICK CODER

8.1 Stopping printing for a short time

If the HQC is deactivated for a short time (during a break), the STOP button on the Control Panel should be pressed. The thermostat part of the Control box continues to operate normally. When production is resumed, the START button on the Control Panel must be pressed and the HQC is ready for immediate use.

8.2 Stopping printing for a longer time

If the HQC is deactivated for a longer time (several days):

1. Stop the supply of products;
2. Activate the HEAD-OUT button on the Control Panel;
3. Remove the Ink Roll from the coding part of the HQC;
4. Activate the HEAD-IN button on the Control Panel. This moves the text head back into neutral position;
5. Now switch off the HQC using the OFF button on the Control Panel;
6. If necessary, remove the air pressure from the system;
7. If desired, resume the supply of products;

When the system is **started up again**, you should take account of the requisite heating up time of 15 to 20 minutes

! **WARNING:** Failure to observe the requisite heating up time of +15 minutes leads to irrevocable damage to the text material and the Ink Roll!

9 - MAINTENANCE AND CLEANING

! WARNINGS:

Whenever the HQC is cleaned it should first be completely disconnected from the main power by removing the main plug from the Control box (see figure 5)

Under no circumstances must the HQC be cleaned with water.

9.1 Maintenance

It is recommended to have the HQC system checked and/or reconditioned periodically. The recommended frequency is once every two years depending on the degree of use of the HQC. No special tools are needed for carrying out maintenance work.

9.2 Cleaning

The HQC can best be cleaned using a dry brush. The control box can best be cleaned using a cleaner that will not damage the plastic.

10.1 Text head does not move

	POSSIBLE CAUSE	ACTION
1.	Still in preheating mode. (STOP status).	Activate the START button on the Control Panel (normal operation, see also 5.1.1).
2.	No air pressure.	Check reducing valve on the Control box.
3.	No supply voltage.	Measure the voltage on the 115V AC terminals in the command box voltage.
4.	Fuse blown.	Check the fuses (on the PCB) in the Control box and replace if blown (coil and/or system power not illuminated).
5.	Magnetic valve defective.	Replace the magnetic valve.
6.	Wire broken in the supply and/or control cable.	Disconnect the system from the power and the cables. Test the power cable and control cable. (heating & sensor). If necessary, replace the power and control cable. (see electrical connection diagram appendix C).

10.2 Text head moves but no printing or partial printing visible

	POSSIBLE CAUSE	ACTION
1.	Temperature too low.	Set temperature to a higher value
2.	Stamping time too short.	Set stamping time to a higher value Adjust the counter-pressure plate or HQC.
3.	Counter-pressure plate / product far from the text head of the HQC.	Check that the text material is not worn or that the (loose) characters are varying in height. If necessary replace the block or the characters
4.	Fault in the text material.	Adjust the HQC in relation to the product to be coded.
5.	The HQC is out of alignment with the product to be printed.	Check the Ink Roll and replace if necessary. Check the position of the transport spring and adjust it if necessary.
6.	The Ink Roll is empty (exhausted).	
7.	The Ink Roll does not turn.	

10.3 Printing too thick

	POSSIBLE CAUSE	ACTION
1.	Temperature too high.	Set temperature to a lower value.
2.	Stamping time too long.	Set stamping time to a lower value.
3.	Text head too close to product.	Adjust distance if necessary to 2-3 mm.

10.4 The text head is not heating up

	POSSIBLE CAUSE	ACTION
1.	Fuse blown.	Replace the fuse (accessible from outside).
2.	Wire broken in the supply.	Check the control cable and the main power cable for short circuit or breakage. If necessary replace the power and control cable (see electrical connection diagram appendix C).
3.	Sensor is broken or defective.	Test the sensor at points 1 and 2 of the connector on the HQC (first disconnect the supply and control cable). The correct value is 220 kOhm at 77°F. Replace the cable if the value deviates more than 10%.
4.	Heating element defective.	Test the heating element at points 3 and 4 of the or short circuited connector on the HQC (first disconnect the supply and control cable). The correct value is 825 kOhm at 77°F. Replace the cable if the value deviates more than 10%.

11.1 Technical data Hot Quick Coder

Mass of coding part [kg]	2
Mass of Control box [kg]	2.3
Length of supply and control cable [m].	2.5
Maximum printing area [mm x mm]	12 x 20 or 12 x 24
Maximum printing speed [prints/min]	300
Maximum product speed [m/min]	60
Operating pressure [bar]	±4
Temperature range text head [°C]	80 - 160
Supply voltage (50/60Hz) [V AC]	110 / 220 V AC ±10% 50-60 Hz
Air consumption	0.3 ltr. at 4 bar.
Power consumption [Watt]	110 max.

11.2 Setting the HQC to the correct main voltage (110/220V)

SW 1 is located on the PCB at the center of the box. This is used to select whether the Control box should operate on 115 V AC or 230 VAC. This therefore depends on the available main voltage. This is set as standard to 115 VAC.

11.2.1 Trigger Signal from Parent Equipment

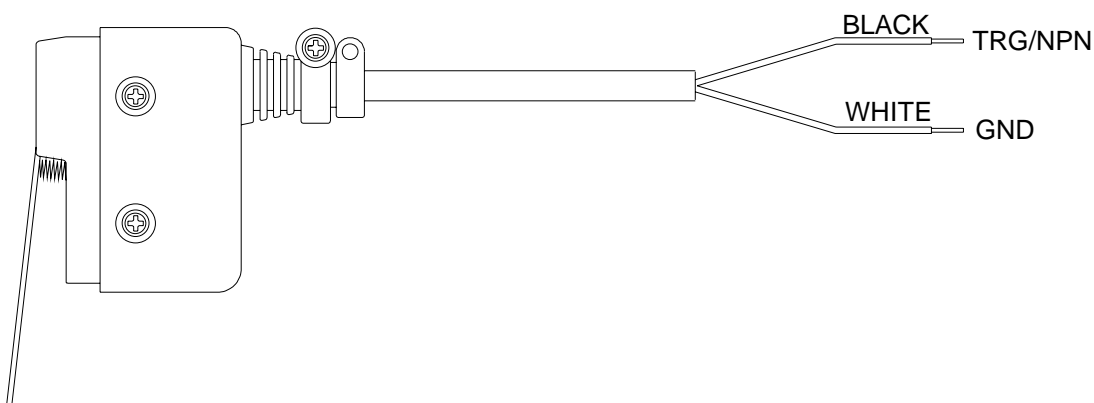
Connect the 24 VDC Signal in to: TRG/PNP (MINIMUM 15MS)

Connect the Common to: GND

Dip Switch settings: 1 = ON
2 = OFF

11.2.2 HQC-100-MST - MICRO-SWITCH TRIGGER

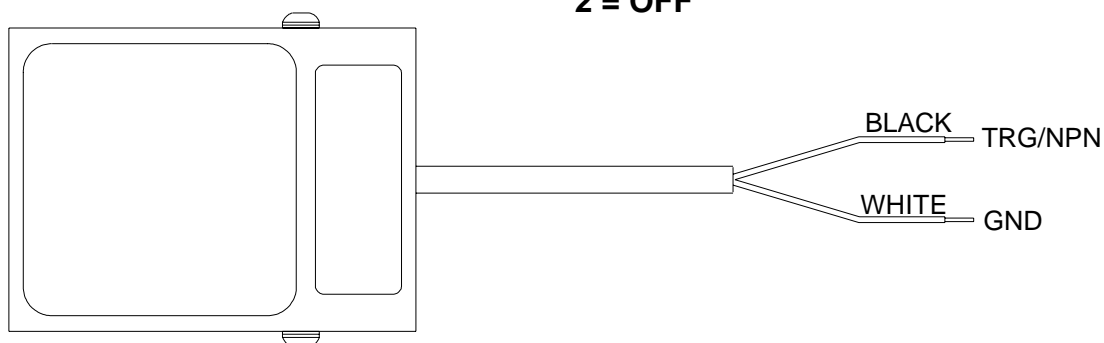
Set HQCD switch setting for NPN: 1 = ON
2 = OFF



11.2.3 HQC-100-FPT - FOOT PEDAL TRIGGER

Set HQCD switch setting for NPN:

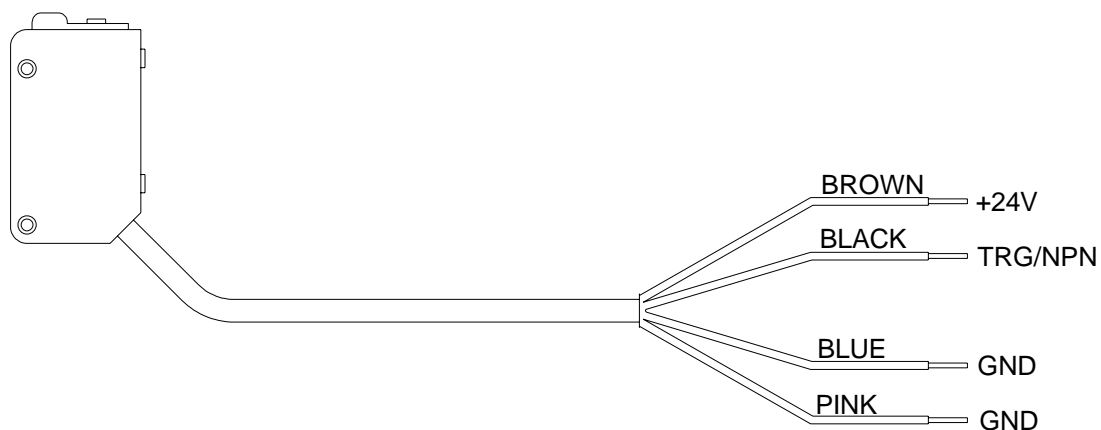
1 = ON
2 = OFF



11.2.4 HQC-100-PCT-D - DIGITAL PHOTOCELL TRIGGER

Set HQCD switch setting for NPN:

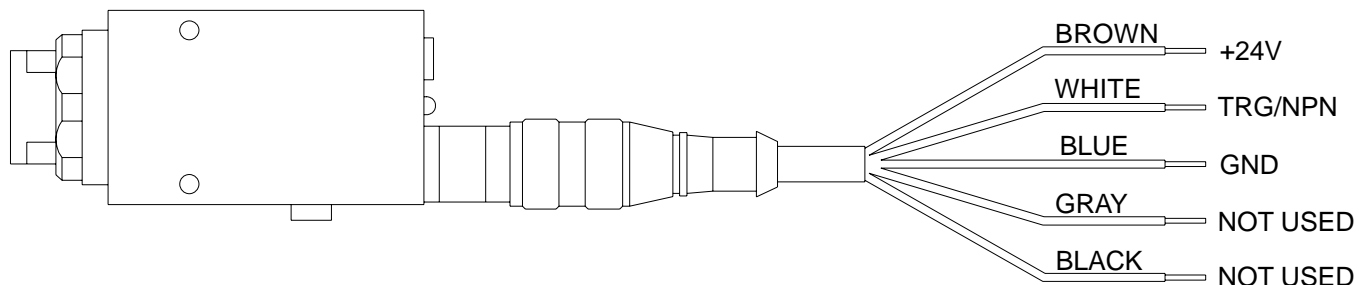
1 = ON
2 = OFF



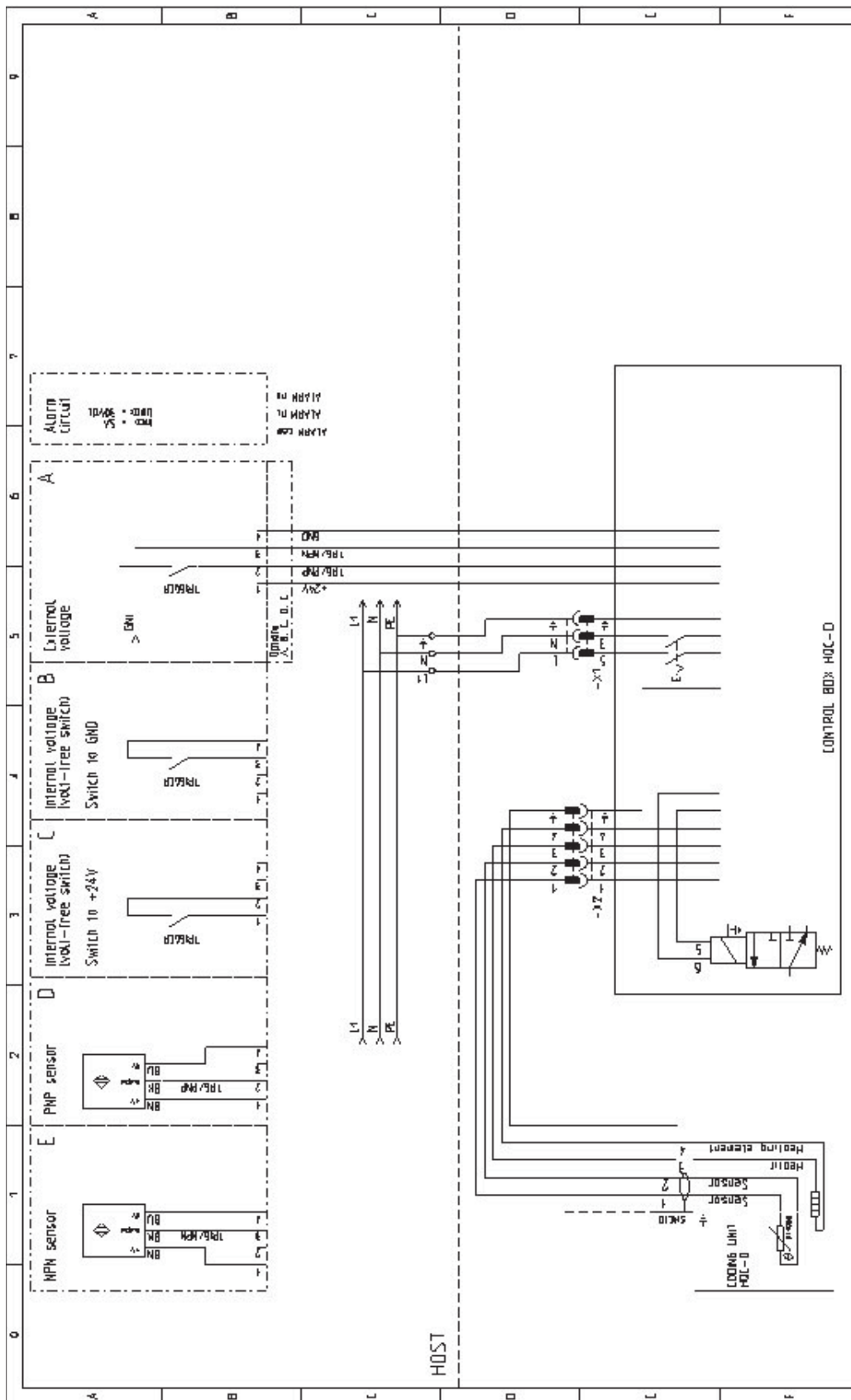
11.2.5 HQC-100-PCT-LR - LONG RANGE PHOTOCELL TRIGGER

Set HQCD switch setting for NPN:

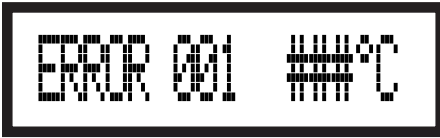
1 = ON
2 = OFF



12.1 Control Box Electrical Connection Diagram



1.1 Error 001

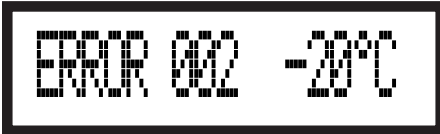


A too high or too low print temperature is detected.
The print temperature must be in between -10 to 200°C.
The actual temperature is displayed, here represented as ###°C

1.1 Error 002

Occurs only in the stop or run mode.

1.1.1 -20°C



The temperature sensor circuit is short circuited or the PT1000 sensor is defect.

1.1.1 300°C



The temperature sensor circuit is open circuited or the PT1000 sensor is not connected or defect.

1.1 Error 003

Occurs only at system boot.

1.1.1 -20°C



The temperature sensor circuit is short circuited or the PT1000 sensor is defect.

1.1.1 300°C



The temperature sensor circuit is open circuited or the PT1000 sensor is not connected or defect.

1.1 Error 004

Occurs only if the SET ALARM parameter is set.



The temperature alarm is activated.

A too high or too low print temperature deviation from the SET TEMP parameter value ($\pm 5^{\circ}\text{C}$, $\pm 10^{\circ}\text{C}$ or $\pm 15^{\circ}\text{C}$) has occurred.

The actual print temperature is displayed, here represented as ###°C.

1.1 Error 016



The print temperature algorithm does not detect a temperature change while the heating elements are switched on.

Perhaps the heating element(s) or PT1000 sensor are not connected or defect, the fuses F1/F2 are blown or the heating circuit is defect.

The actual detected print temperature is displayed, here represented as ###°C.

1.1 LCD screen is not lit

Check the fuses F1, F2, F3 and F4. See Installation chapter.

HOT QUICK CODER TRIGGERING DEVICES

The print cycle of the HQC-100 Hot Quick Coder can be initiated or “triggered” in a number of ways, including a foot pedal switch, production line mounted microswitch or a variety of photocells. Universal offers the following standard triggering systems in kit form which includes all the required hardware and complete installation instructions.



The Foot Pedal Trigger is designed for manual initiation of the marking cycle. This triggering device is commonly used when the coder is bench mounted and products are manually placed under the marking head for imprinting. The HQC-100-FPT Kit includes a Foot Pedal Switch, an 8 Foot Cable and installation instructions.



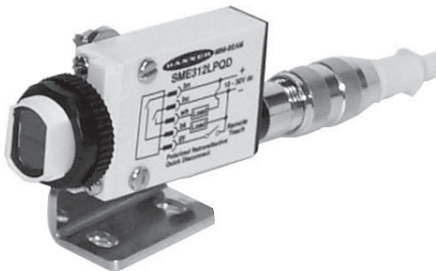
The HQC-100-MST Micro-Switch is a contact trigger used to initiate the print cycle of the HQC. This unit is permanently mounted to the production line and has a 2.5” long trip lever with a low (2.5 Oz.) operating force. Body Dimensions: 2.1” x 1.55” x 0.84”.

The HQC-100-MST Kit includes a Microswitch, Dust Proof Enclosure, 6 Foot Cable, Mounting Screws and installation instructions.



The HQC-100-PCT-D is a compact NPN, intelligent reflective beam photocell which is used for non-contact triggering of the HQC marking cycle. This photocell features both automatic and manual calibration options, digital readout, and a sensing range of up to 11.81” (300mm). This sensor excels in applications where product shape, color variations and even clear packaging materials can cause other photocells to fail. Body Dimensions: 1.4” x 0.785” x 0.48”.

The HQC-100-PCT-D Kit includes the Photocell, Mounting Bracket, 6 Foot Cable and installation instructions. IP-67 Rated for harsh, wet environments.



The HQC-100-PCT-LR is a compact, long range retro-reflective Photocell which is used for non-contact triggering of the HQC marking cycle. This unit has an effective range up to 10 feet and is rated for harsh environments and suitable for installation in wet areas. Body Dimensions: 2.6” x 1.21” x 0.48”.

The HQC-100-PCT-LR Kit includes the Photocell, mounting bracket, 6 foot cable and 3” diameter reflector. (Not recommended for sensing clear plastic or glass containers.)

PART NUMBER	DESCRIPTION
HQC-100-FPT	FOOT PEDAL TRIGGER KIT
HQC-100-MST	MICRO-SWITCH TRIGGER KIT
HQC-100-PCT-D	PHOTOCELL TRIGGER KIT
HQC-100-PCT-LR	PHOTOCELL TRIGGER KIT - LONG RANGE

KORTHO HOT QUICK CODER INK ROLLS & TEXT PLATE PARTS LIST



INK ROLLS ARE SUPPLIED IN CONVENIENT SIX-PACK BOXES AND ARE AVAILABLE IN THE FOLLOWING COLORS:

BLACK, BLUE, RED, WHITE, GREEN AND YELLOW.

Ink rolls, which are dry to the touch at room temperature, are preheated prior to use in the self-contained heating system. The Hot Quick Coder utilizes hot ink technology to provide clean, sharp, nearly instant dry impressions at a high rate of speed. When hot, the ink in the roll becomes fluid and is then ready for operation. A spare roll can be stored in the unit's preheat chamber during production to keep it ready for immediate use.



FLAT TYPE HOLDER - 4 RIB

Additional HQC-100-FTH Flat Type Holders are available to enable setting up codes off line for extremely fast code changes during production. Having a spare eliminates the need to let the active Type Holder cool down for comfortable handling.

Print Area: 12mm x 24mm (Approx: 0.5" x 1.0")



CONCAVE TYPE HOLDER

The HQC-100-THCONCAVE Type Holders are designed for use in applying codes along the length of cylindrical parts such as round bottles and cans. The concave shape of this type holder conforms to the curvature of the cylinder and enables multiple lines to be printed. The ribbed rubber mat hold the type and provides a cushion to ensure a clear imprint



CONVEX TYPE HOLDER

The HQC-100-THCONVEX Type Holders are designed for use in applying codes to the bottoms of aerosol cans. The convex shape of the type holder conforms to the curvature of the can bottom. A ribbed rubber mat holds the type and provides a slight cushion to ensure a clear imprint.

PART NUMBER	DESCRIPTION
HQC-6-BK	S-11 BLACK HOT QUICK CODER INK ROLLS - 6/PK
HQC-6-BL	S-12 BLUE HOT QUICK CODER INK ROLLS - 6/PK
HQC-6-RD	S-14 RED HOT QUICK CODER INK ROLLS - 6/PK
HQC-6-WH	S-15 WHITE HOT QUICK CODER INK ROLLS - 6/PK
HQC-6-GR	S-17 GREEN HOT QUICK CODER INK ROLLS - 6/PK
HQC-6-YL	S-16 YELLOW HOT QUICK CODER INK ROLLS - 6/PK
HQC-100-FTH	FLAT TYPE HOLDER - 4 RIB
HQC-100-THCONCAVE	CONCAVE TYPE HOLDER
HQC-100-THCONVEX	CONVEX TYPE HOLDER

KORTHO HIGH-TEMP RIBtype® SILICONE TYPE

The KORTHO Hot Quick Coder utilizes High-Temp RIBtype® Silicone type. This interchangeable ribbed type is available in a variety of sizes as shown below. The High-Temp rubber type is for the KORTHO Hot Quick Coder only. All boxed sets contain an assortment of characters, including punctuation, in varying quantities. The chart below shows the quantity of each character in our listed boxed sets.

A + ASSORTMENT																										
CHARACTER	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
QUANTITY IN SET	7	5	5	5	7	5	5	5	5	5	5	5	5	7	5	5	3	5	5	5	5	5	5	3	3	5
CHARACTERS	Å	Ä	Ö	Ü	Æ	Ø	1	2	3	4	5	6	7	8	9	0	.	,	-	/						
QUANTITY IN SET	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	3	1	1						

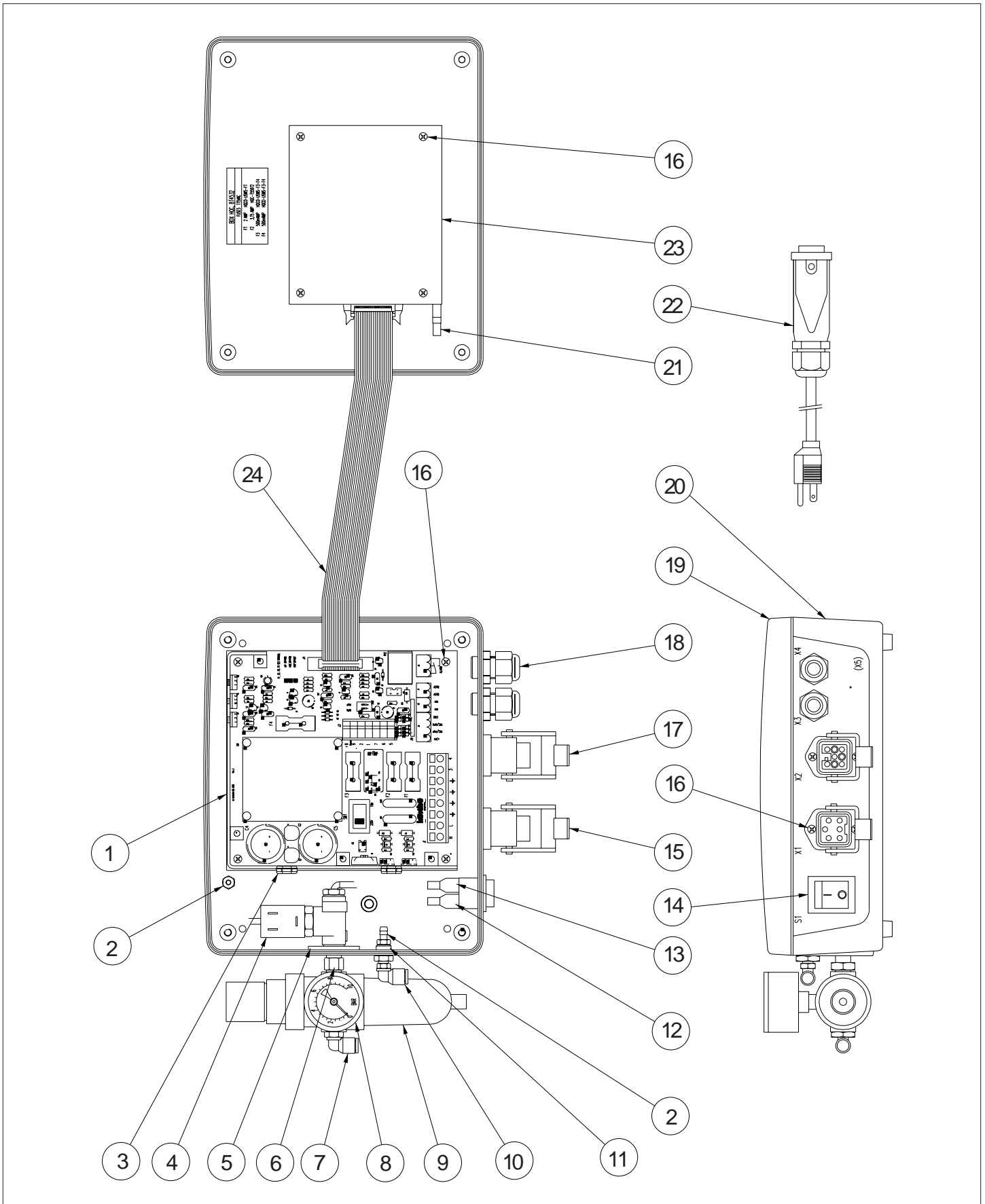
C + ASSORTMENT																										
FIGURES	1	2	3	4	5	6	7	8	9	0	.	,	-	/												
QUANTITY IN SET	9	9	9	9	9	9	9	9	9	9	2	3	2	2												

STYLE NO.	*TYPE FACE HEIGHT	LETTER TYPE SAMPLE	FIGURE TYPE SAMPLE
2/8	2 mm = 5/64"	DEFGHIJKLMNOPQRSTUVWXYZAB	012345678901234567890123456789
2/10	2.5 mm = 3/32"	CDEFGHIJKLMNOPQRSTUVWXYZVW	012345678901234567890123456
2/12	3 mm = 1/8"	XYZABCDEFGHIJKLMNO	56789012345678901234567
2/14	3.5 mm = 9/64"	PQRSTUVWXYZABCDEFGHI	78901234567890123456
2/16	4 mm = 5/32"	GHIJKLMNOPQRSTU	78901234567890123
2/20	5 mm = 3/16"	VWXYZABCDEFGHI	456789012345678

* TYPE FACE HEIGHTS ARE APPROXIMATE

KORTHO HIGH-TEMP RIBtype® SILICONE TYPE		
STYLE NO.	STOCK NO. A+ ASSORTMENT	STOCK NO. C+ ASSORTMENT
2/8	UR-28A+	UR-28C+
2/10	UR-210A+	UR-210C+
2/12	UR-212A+	UR-212C+
2/14	UR-214A+	UR-214C+
2/16	UR-216A+	UR-216C+
2/20	UR-220A+	UR-220C+

HQCD-814532 - KORTHO DIGITAL HOT QUICK CODER CONTROL BOX ASSEMBLY



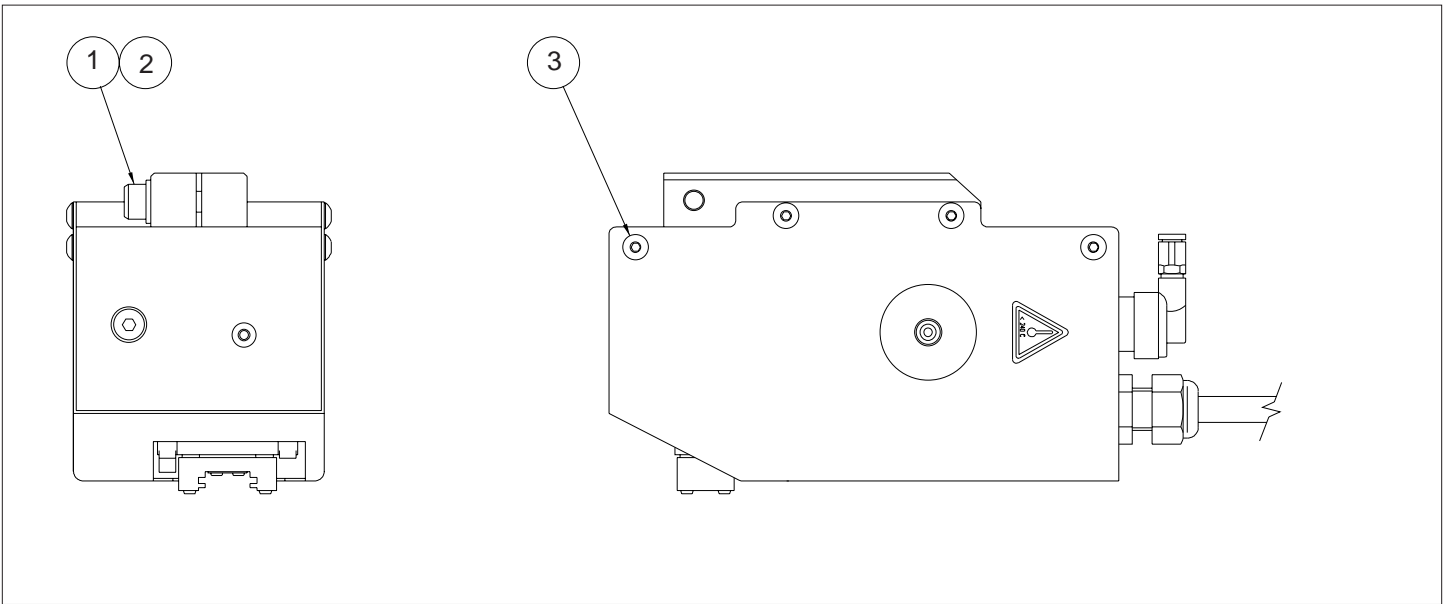
HQCD-814532 - KORTHO DIGITAL HOT QUICK CODER CONTROL BOX PARTS LIST

KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQCD-814418	1	POWER PCB HQC-D
2	HQCD-152877	2	HOSE NIPPLE M5 X 4MM
3	HQCD-165098	2	COUPLING UNIT HOSE
4	HQC-160564	1	3/2 MAGNETIC VALVE 1/8 - 1, 5-24 VDC
5	HQCD-321758	1	COUPLING 1/8"
6	HQCD-165142	1	DIMINISHING COUPLING - 1/8 X 1/8 K
7	HQCD-161557	1	KNEE JOINT 6 X 1/8"
8	HQC-156517	1	PRESSURE GAUGE 0-10 BAR 1/8 "
9	HQC-152765	1	FILTER - REDUCTION UNIT 1/8"
10	HQCD-165139	1	KNEE JOINT 6 X M5
11	HQC-152819	1	REDUCING COUPLING 1/8XM5
12	HQC-814841	1	CORD BLACK HQC / HP
13	HQCD-814838	1	CORD BLUE HQC / HP
14	HQCD-165101	1	SWITCH CONTROL BOX HQC / HP
15	HQCD-814825	1	CHASSIS PART MAINS VOLTAGE
16	HQC-160481	12	ROUND HEAD COUNTER SUNK SCREW 3 X 8 ST.
17	HQCD-814771	1	CHASSIS PART CONTROL BOX
18	HQC-158632	2	COUPLING NUT PG 9
19	HQCD-321704	1	TOP CONTROL BOX HP / HQC / KWP
20	HQCD-321732	1	BOTTOM CONTROL BOX
21	HQCD-814867	1	EARTH WIRE PCB HQC / HP
22	HQC-811869	1	POWER CORD, 115 VAC
23	HQCD-814434	1	PCB FRONT PLATE BOX
24	HQCD-814879	1	CONTROL CABLE PCB HQC / HP

Fuse Specifications for 115 VAC 60 Hz Systems

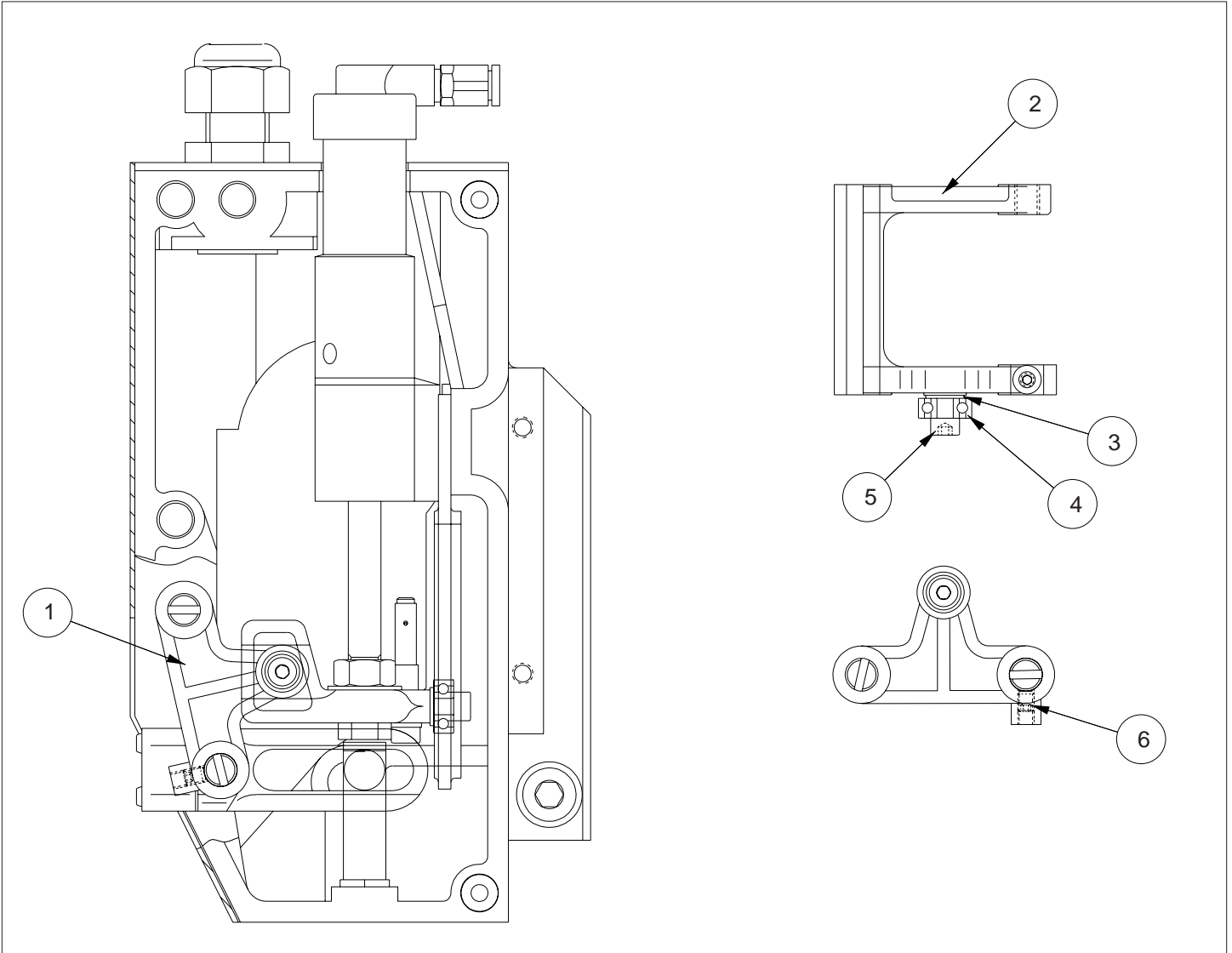
FUSE	PART NUMBER	DESCRIPTION
F1	HQCD-USMS-FI	2 A (5X20) S FUSE
F2	HQC-155972	3.15 A (5 X 20) S FUSE
F3	HQCD-USMS-F3-F4	500 mA (5 X 20) S FUSE
F4	HQCD-USMS-F3-F4	500 mA (5 X 20) S FUSE

HQCD-815007 - KORTHO DIGITAL HOT QUICK CODER PRINT HEAD ASSEMBLY & PARTS LIST



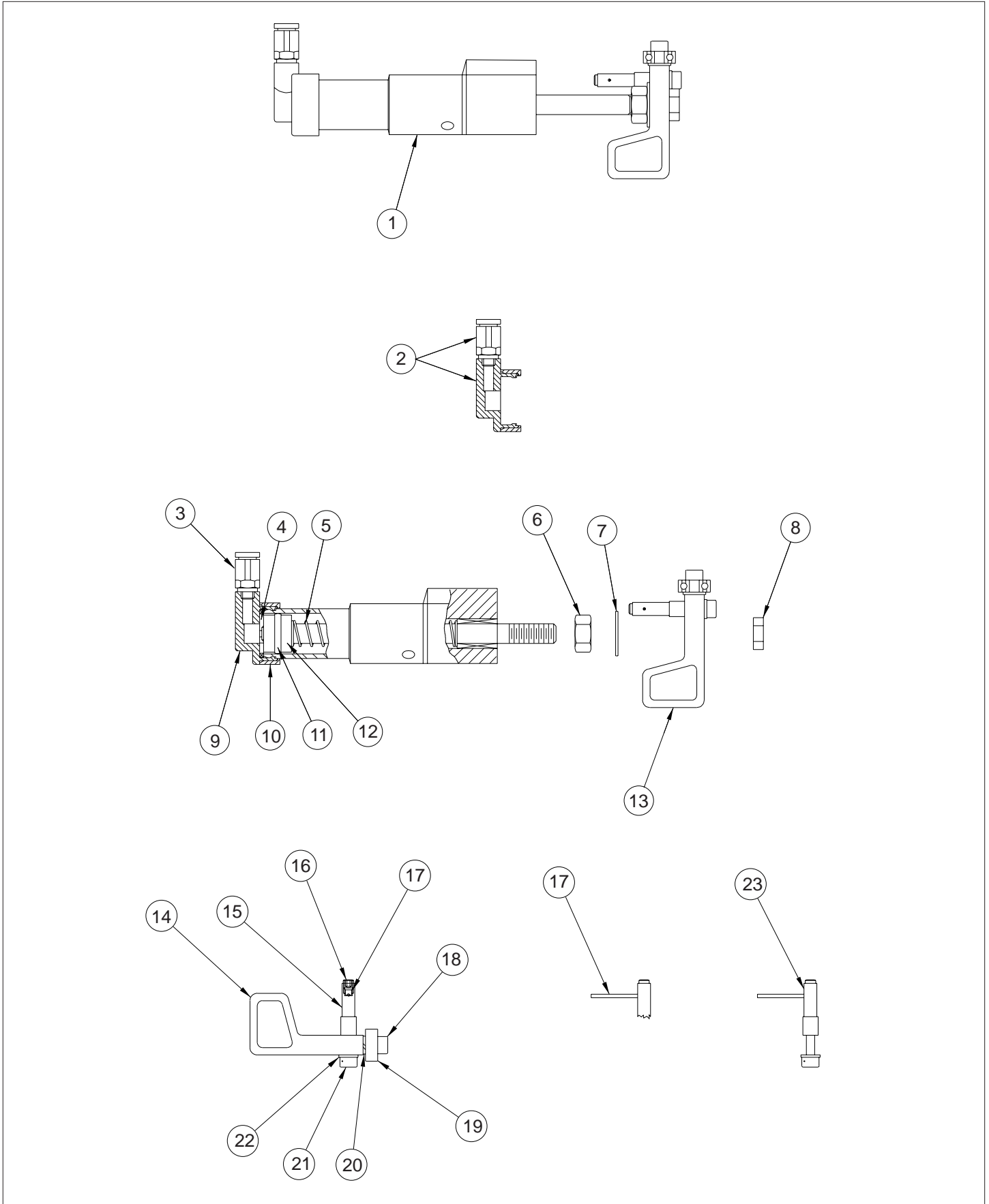
KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQC-154782	1	CLAMPING SCREW, M8 x 35MM
2	HQC-154755	1	WASHER, 8MM
3	HQC-159399	8	SCREW, M5 X 10MM - BUTTON HEAD

HQC-803399 - KORTHO HOT QUICK CODER FORK ASSEMBLY & PARTS LIST



KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQC-803399	1	FORK ASSEMBLY, HQC
2	HQC-304764	1	FORK, PRINT HEAD
3	HQC-156454	1	WASHER, M4 X 3 SS
4	HQC-118087	1	BEARING
5	HQC-151699	1	SCREW, M4 X 12 SS
6	HQC-154318	1	SET SCREW, M4 X 10 SS

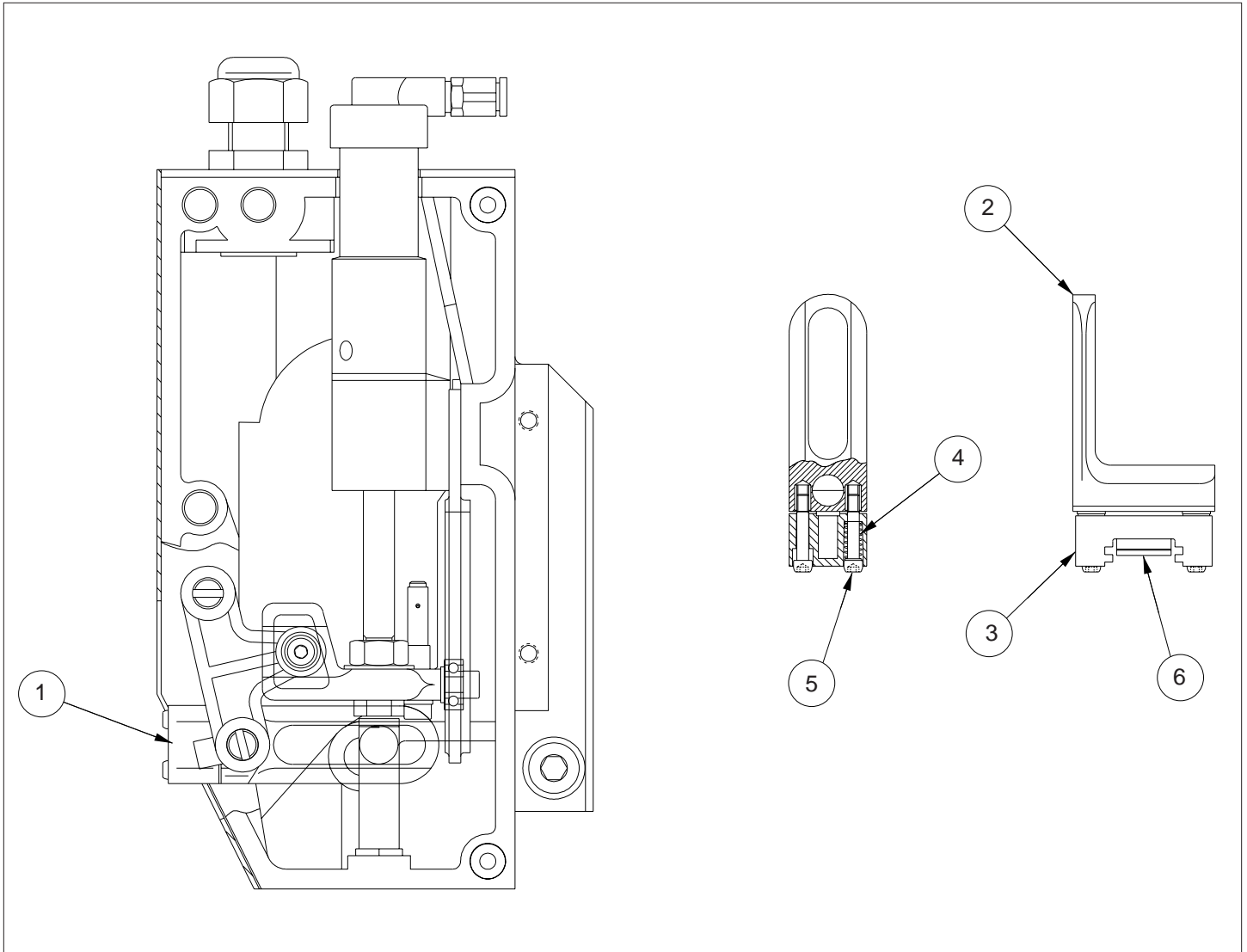
HQC-809238 - KORTHO HOT QUICK CODER AIR CYLINDER ASSEMBLY



HQC-809238 - KORTHO HOT QUICK CODER AIR CYLINDER PARTS LIST

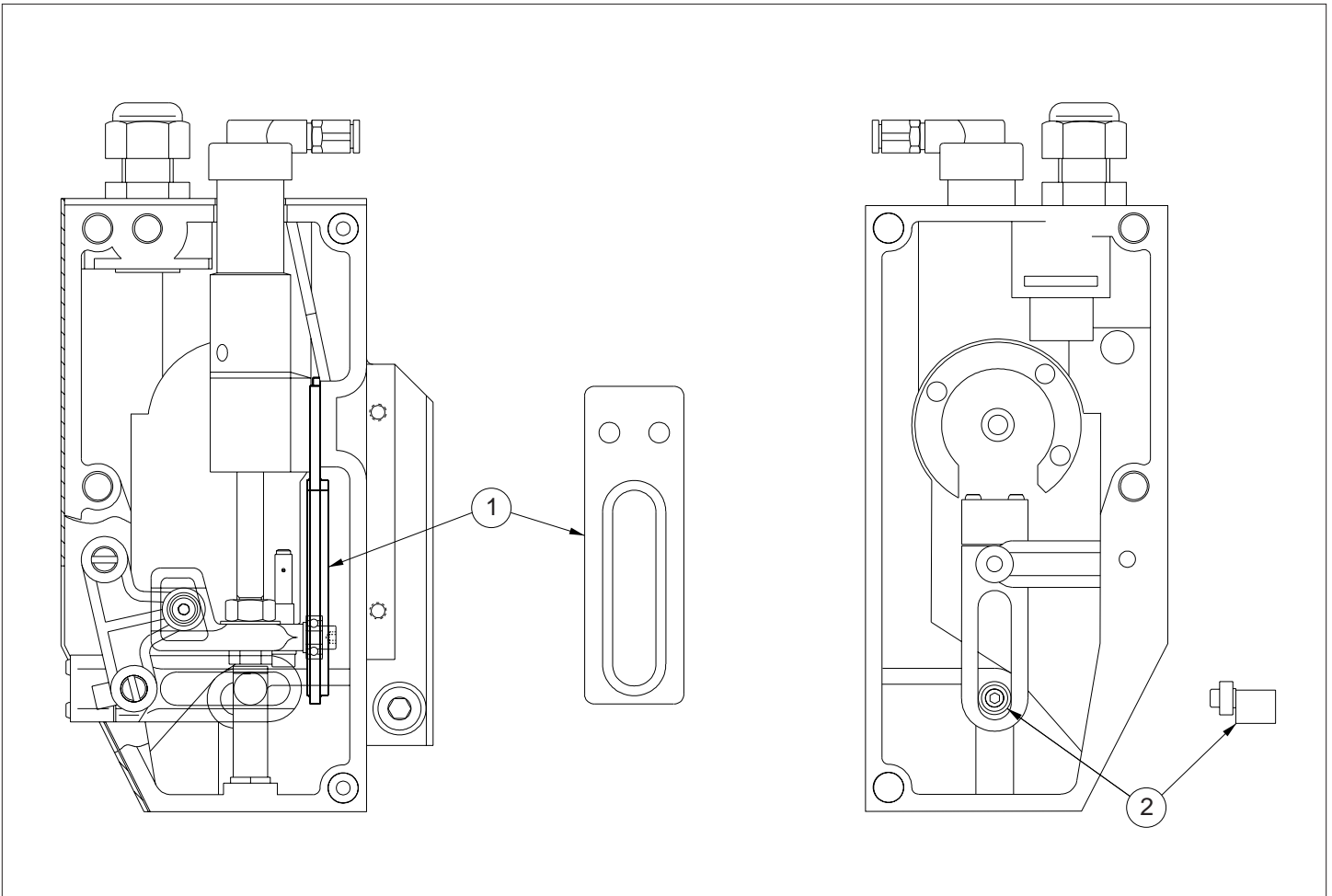
KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQC-809238	1	AIR CYLINDER ASSEMBLY, HQC-AT - COMPLETE
2	HQC-809422	1	CYLINDER BOTTOM ASSEMBLY. - HQC
3	HQC-160659	1	STRAIGHT TUBE COUPLING, M5 X 6
4	HQC-156389	1	BUFFER RING, HQC
5	HQC-158127	1	RETURN SPRING, AIR CYLINDER
6	HQC-151451	1	HEX NUT, M8 X 1 SS
7	HQC-163071	1	WASHER
8	HQC-304859	1	BUSHING, DRIVING BLOCK
9	HQC-319365	1	BOTTOM, CYLINDER - HQC
10	HQC-156377	1	RETAINING RING, CYLINDER BOTTOM - HQC
11	HQC-151814	1	PISTON GASKET RING 16X9X2, 1MM
12	HQC-802518	1	PISTON, HQC
13	HQC-809419	1	DRIVING BLOCK, HQC
14	HQC-315919	1	DRIVING BLOCK, HQC
15	HQC-315808	1	SPRING HOLDER, HQC
16	HQC-159654	1	SET SCREW, SPRING HOLDER - M4 X 6
17	HQC-317587	1	SPRING, INK ROLL INDEX
18	HQC-151702	1	SCREW, M4 X 16 SS
19	HQC-118087	1	BEARING
20	HQC-151798	1	LOCK WASHER, M4 X 1 SS
21	HQC-151699	1	SCREW, M4 X 12 SS
22	HQC-151798	1	LOCK WASHER, M4 X 1 SS
23	HQC-810851	1	DRIVING BLOCK/SPRING HOLDER ASSEMBLY - COMPLETE

HQC-809855 - KORTHO HOT QUICK CODER TEXT PLATE HOLDER ASSEMBLY & PARTS LIST



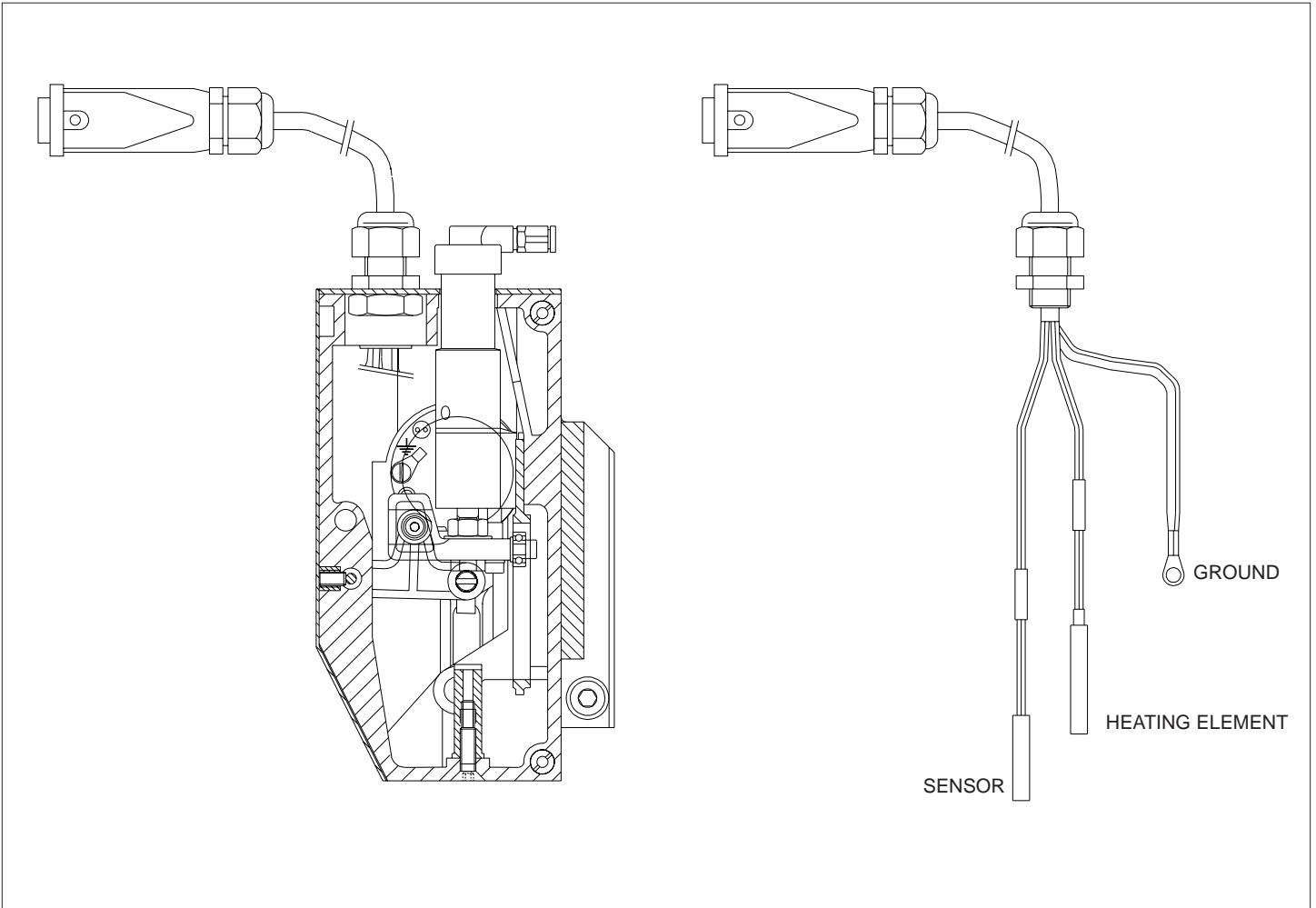
KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQC-809855	1	TEXT PLATE HOLDER ASSEMBLY, HQC - COMPLETE
2	HQC-802801	1	GUIDE BRACKET
3	HQC-809842	1	TEXT PLATE HOLDER, HQC
4	HQC-126572	2	COMPRESSION SPRING
5	HQC-304818	4	SCREW, PRINTING HEAD
6	HQC-304999	1	SPRING CLIP, PRINTING HEAD

KORTHO HQC-100 HOT QUICK CODER CAM HOLDER & PARTS LIST

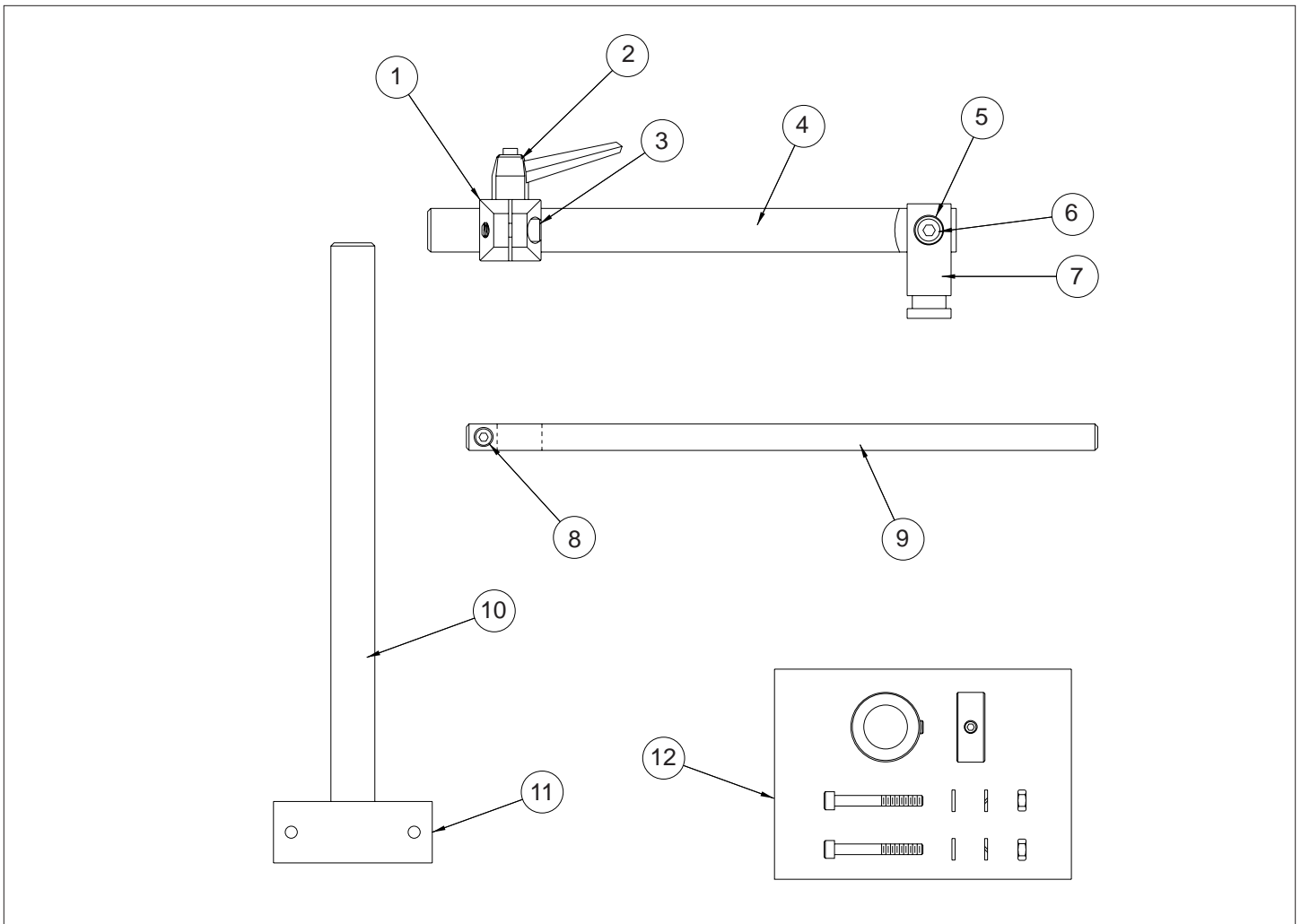


KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQC-316454	1	CAM HOLDER, HQC
2	HQC-802941	1	ECCENTRIC BRASS PLUG WITH BALLBEARING

**HQCD-814994 - KORTHO DIGITAL HOT QUICK CODER
HEATING ELEMENT ASSEMBLY**



HQC-809477 - KORTHO HOT QUICK CODER MOUNTING BRACKET ASSEMBLY & PARTS LIST



KEY NO.	PART NUMBER	QTY. REQD.	DESCRIPTION
1	HQC-316034	1	CROSS CLAMP BLOCK - HQC
2	HQC-158897	1	HANDLE, M8 X 25 - HQC
3	HQC-153478	1	CLAMPING SCREW, M8 X 20
4	HQC-315992	1	MOUNTING ARM - HQC
5	HQC-153452	1	LOCK WASHER, M8 X 1
6	HQC-155174	1	SOCKET HEAD CAP SCREW, M8 X 25
7	HQC-316664	1	MOUNTING STUD - HQC
8	HQC-154429	1	SOCKET HEAD CAP SCREW, M6 X 25
9	HQC-316062	1	PLATEN - HQC
10	HQC-315989	1	MOUNTING COLUMN - HQC
11	HQC-316018	1	MOUNTING BASE - HQC
12	HQC-809464	1	SHAFT COLLAR & HARDWARE KIT