User instructions
Operating instructions

THERMOCODE iQ
THERMAL TRANSFER PRINTER

Designed and manufactured by:
OPEN DATE EQUIPMENT LIMITED
UNITS 8 & 9 PUMA TRADE PARK
145 MORDEN ROAD
MITCHAM
SURREY
CR4 4DG
UNITED KINGDOM

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About this manual

This manual covers CE Conformity, warranty, maintenance and troubleshooting of the Thermocode iQ printer.

There are two further manuals covering the iQ printer system:
The iQ Software Manual covers the operation of the printer software and functions of the Touch Screen Display.
The iQ Power Supply Manual covers Safety, an overview of the Components and Connections and the Power Supply (PSU).

Contents

General Information

The Thermocode iQ is versatile on-line thermal transfer printer capable of printing high quality images including text, graphics, dates, barcodes and 2D codes onto flexible packaging including labels, films, foils, cartons and cards as well as other materials.

Features;
- High speed intermittent operation
- 300 dpi (12 dots/mm) print resolution
- 53 x 100mm print area
- 7” (18cm) touch screen display
- Self levelling printhead
- 1000 metre ribbon capacity
- Onboard image creation software
- All electronic operation (no compressed air)
- Easy loading ribbon magazine
- Precision engineered product
- Printer status display
- Password protected access
- USB & Ethernet connectivity
- Fast image updating
- Onboard diagnostics
- Real time printing
- Full networking capability

Thermocode iQ Printer System
- iQ Printer with Magazine
- iQ Touch Screen Display with 1.5m cable
- iQ Power Supply with Mains Cable
- PSU to Printer Lead (1.5m long)
- 3 off Ferrites for external cables to PSU
- CD Rom User Manual

If you have purchased a printer, power supply, display and PSU to printer lead together then the following items will also be supplied.
- 55mm x 1000m Roll of TTR769817 Black, Wax/Resin Thermal Ribbon
- Printhead Cleaning Kit

Optional Extras	Part No.
Ethernet Cable (3 metre)	CAB765143
Ethernet Crossover Adaptor	CAB785001
Additional iQ Ribbon Magazine	MAG781000
Standard Mounting Frame for iQ, 53M & 107M	MOU764002
Side Mounting Assembly	ASY782055
Pack of 50 Printhead Wipers	WIP765165
Print Pad	PAD764084
Windows Driver	SOF765155
Codesoft Pro Software	SOF765306

CE Conformity

We hereby declare that the following machinery complies with the essential health and safety requirements of the Machinery Directive 2006/42/EC.

Machine Description: **Thermal Transfer Printer.** Model: **xxxx**

Type: **Thermocode** Serial Number: **xxxx**

Manufactured by: **Open Date Equipment Limited.**
Units 8 & 9 Puma Trade Park,
145 Morden Road,
Mitcham,
Surrey.
CR4 4DG
England

Telephone: - 0208 655 4999

This machinery has been manufactured in accordance with the following transposed harmonised European standards.

EN ISO 12100:2010 Safety of machinery - General principles for design

EN 294: **1992. Safety of Machinery** Safety distances to prevent danger zones being reached by the upper limbs.

EN 60950-1:2006+A1:2010 Information technology equipment. Safety. General requirements

EN 61000 – 6 - 2: 2005 Immunity to Radio Frequency Electromagnetic Field.

EN 61000 – 6 – 4: 2007 Conducted and Radiated Emissions

EN 61000 – 3 - 2: 2006 + A2:2009 Harmonics

EN 61000 – 3 – 3: 2008 Flicker

FCC CFR 47 Part 15B: 2010 Conducted and Radiated Emissions

A technical construction file for this machinery is retained at the above address.

Signed: xxxxxxx Date: xxxxx

Name: **K.F. Wingfield.** Position: **Director**

Being the responsible person appointed by Open Date Equipment Limited.

This Declaration of Conformity complies with Machinery Directive 2006/42/EC.

Standard Warranty Terms and Conditions

Open Date warrants that the Thermocode iQ printer will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment with the exception of the Thermal Printhead, Print Pad, Ribbon Magazine Springs and Belts and the Rubber Covered Drive Roller which are considered to be consumable items. If the product proves defective during the warranty period, Open Date or it's partners will, at their option:
(1) repair the product by means of telephone support or upon it's return at no charge for parts or labour,
(2) replace the product with a comparable product which may be new or refurbished or,
(3) refund the amount paid for the product, less a reasonable allowance for usage, upon its return.

To obtain service under this warranty the Customer must notify Open Date or it's authorised partner of the defect before the expiry of the warranty period. Customers will provide appropriate assistance to Telephone Support personnel to resolve issues.
If telephone support is unsuccessful, the product should be returned to Open Date or it's authorised partner at the shippers expense.

Open Date reserves the right to charge for service in exceptional cases.

In the maintenance of the product, Open Date may use new or equivalent to new parts, assemblies or products for equal or improved quality. All defective parts, assemblies, and products become the property of Open Date. Open Date may require the return of parts, assemblies and products.

This warranty shall not apply to any defect, fault or failure caused to the product by modification, incorrect installation, operation, maintenance, operation outside of the specified performance limits or incompatible consumables being used by the customer, exposure to liquids or moisture or electrical power, signals or connections outside of the ratings specified. Open Date shall not be obligated under these warranties:

a) to repair damage resulting from attempts by the customer to install, repair or service the product unless directed by an Open Date representative,
b) to repair damage, malfunction, or degradation of performance resulting from improper use or connection,
c) to repair damage, malfunction, or degradation of performance caused by the use of incompatible supplies or consumables,
d) to repair an item that has been modified when the effect of such modification increases the time or difficulty of servicing the product or degrades performance or reliability,
e) to perform user maintenance or cleaning or to repair damage, malfunction, or degradation of performance resulting from failure to perform user maintenance and cleaning as prescribed in published product materials,
f) to repair damage, malfunction, or degradation of performance resulting from use of the product in an environment not meeting the operating specifications set forth in the published materials,
g) to repair damage, malfunction, or degradation of performance resulting from failure to properly prepare and transport the product,
h) to warranty repair this product after it exceeds the print volume referenced in this warranty statement,
i) to replace items that have been abused, misused, or tampered with in any way;
j) to install replacement items that are considered customer replaceable;

Any service identified in the above list and provided by Open Date or it's partners shall not be obligated under these warranties:
THE ABOVE WARRANTIES ARE GIVEN BY OPEN DATE WITH RESPECT TO THIS PRODUCT AND ITS RELATED ITEMS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. OPEN DATE AND IT'S PARTNERS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY SIMILAR STANDARD IMPOSED BY APPLICABLE LEGISLATION. OPEN DATE'S RESPONSIBILITY TO REPAIR, REPLACE, OR OFFER A REFUND FOR DEFECTIVE PRODUCTS AND RELATED ITEMS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THESE WARRANTIES.
TO THE EXTENT ALLOWED BY LOCAL LAW, EXCEPT FOR THE OBLIGATIONS SPECIFICALLY SET FORTH IN THIS WARRANTY STATEMENT, IN NO EVENT SHALL OPEN DATE AND IT'S PARTNERS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFITS) WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY AND IRRESPECTIVE OF WHETHER OPEN DATE OR IT'S PARTNER HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Static Electricity
Static electricity can cause damage to the printer or printhead. Open Date will not accept warranty claims if any damage to the printer or components within is caused as a result of exposure to static electricity and recommends that adequate measures are taken to control the amount that is present in the printer's vicinity by the use of methods such as carbon brushes and earthing.

If you are in doubt about your installation please contact Open Date or one if it's approved partners.

1.0 IMPORTANT SAFETY INFORMATION

The presence of this symbol ! in the text indicates potential risk to equipment or personnel.

Please read all manuals fully before installation, operation or maintenance.
Follow all warnings and instructions marked on the product.
Refer installation and service to suitably qualified personnel only.

1. The power supply must be earthed via the 3 pin ac mains socket on the front panel. It is dangerous to operate the printer system without an earth connection.
2. The printer, power supply and touch screen contain no user serviceable parts. Apart from removal of the ribbon magazine no other part of the equipment should be opened or dismantled by the user unless suitably trained/qualified to do so.
3. The power supply operates from dangerous voltages and must be disconnected from the ac mains supply before removal of the top cover.
4. **To disconnect the ac mains supply** remove the power connector from the ac mains socket on the front panel of the power supply.
5. Fuses must only be replaced with those of the same type and specification. Types and ratings are given in the power supply manual.
6. Only operate the printer from the type of mains supply specified on the rear panel of the power supply.
7. Disconnect the ac mains supply before connecting or disconnecting Thermocode iQ components.
8. Disconnect the ac mains supply whenever cleaning or maintenance is undertaken.
9. No part of the printer system is waterproof or pressure washable.
10. Do not use the any part of the printer system near water. Do not allow liquid to be spilt onto any part of the printer system.
11. Do not place any part of the printer system on an unstable stand, table or machine. Operator injury and/or product damage may result from the product falling.
12. Do not insert foreign objects into any apertures in the printer system. Damage, short circuits or electric shock may result.
13. Do not use the product in areas where explosive gasses or substances are present.

! Disconnect the ac mains supply and refer to qualified personnel under the following conditions:

- If the cabling and/or part of the hardware appears damaged.
- If liquid has been spilt onto or into any part of the hardware.
- If the product malfunctions or fails to operate normally when the user instructions and the troubleshooting guide are followed.

2.0 Thermocode iQ Printer System

A standard Thermocode iQ thermal transfer printer system consists of these hardware components:

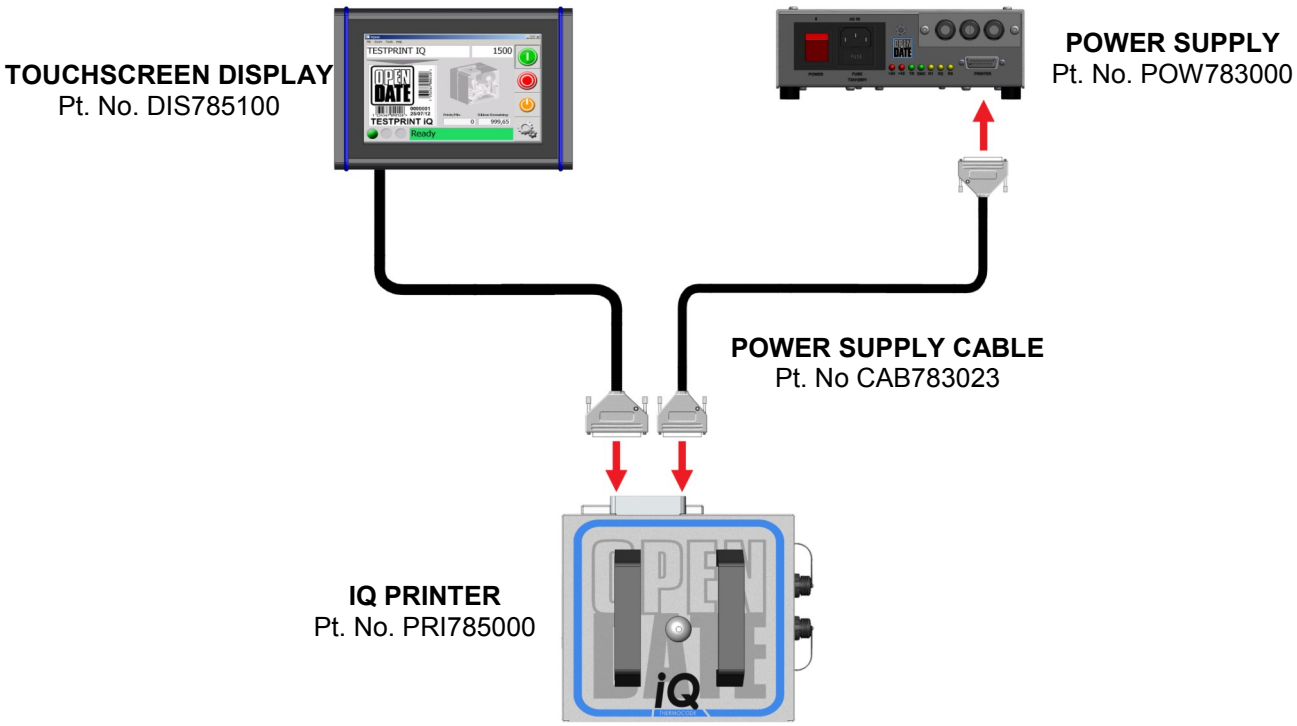
Printer	Pt. No. PRI785000
Display	Pt. No. DIS785100
Power Supply	Pt. No. POW783000
PSU to Printer Cable (2m)	Pt. No. CAB783000

The printer contains the system computer which drives the printing mechanism and the display. It has a user removable magazine for ribbon replacement.

The display has a touch screen for configuring and operating the printer, and shows information about the printer status. It connects to the printer using a captive “D” connector cable.

The power supply has connections for print triggering and interfacing with external equipment. Three software programmable relays can be set to indicate printer status to external equipment. The power supply is connected to the printer using a 2 metre long “D” to “D” cable.

3.0 System Diagram



4.0 System Connection

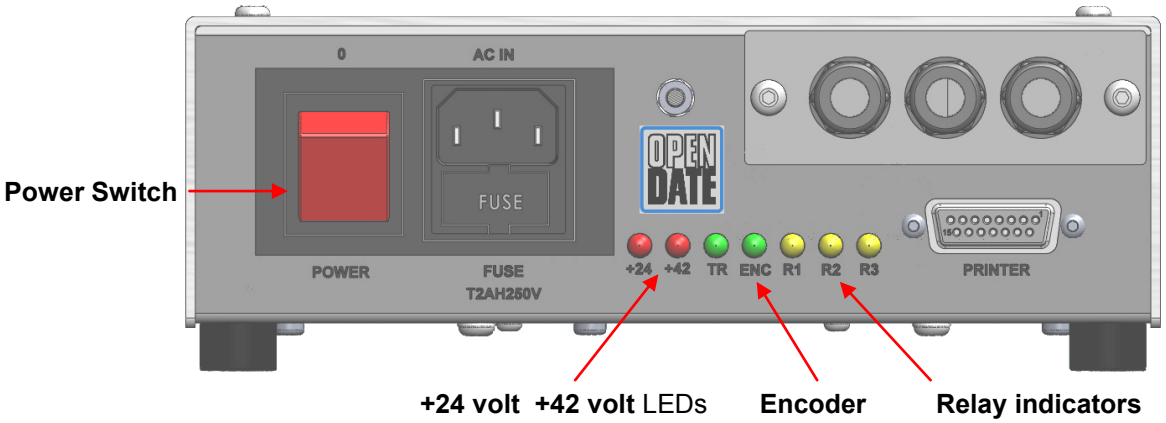
! **See IMPORTANT SAFETY INFORMATION on page 6 before making connections**.

Disconnect the power supply by removing the mains cable before connecting or disconnecting system components.

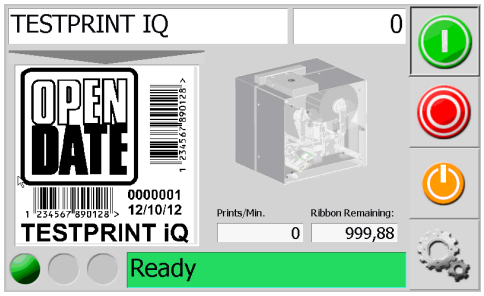
Make all connections to external equipment (iQ Software Manual) and connect the iQ system as shown before powering up.

5.0 Power Up Sequence

Please read the Thermocode iQ Power Supply Manual before Powering up the printer system for the first time.
Power up the printer by turning on the red illuminated rocker Power Switch.
Both the +24 volt and +42 volt red LEDs will light immediately. The green encoder light will also be lit however this has no function.
After approximately 15 seconds the Touch Screen (iQ Editor) will boot up and display the home screen as shown below.
If any of the relays have been programmed they will also light after the iQ Editor has booted (please refer to the iQ Software Manual for details)

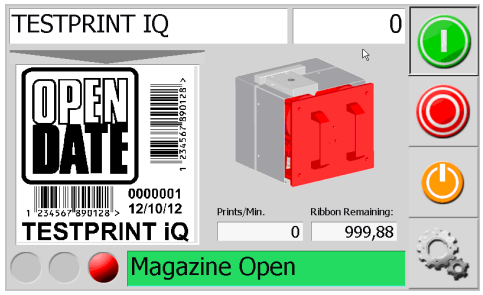


If either the +24 volt or +42 volt LEDs fail to light the Editor will not boot.
Refer to Fault Finding section for possible reasons (chapter 10)



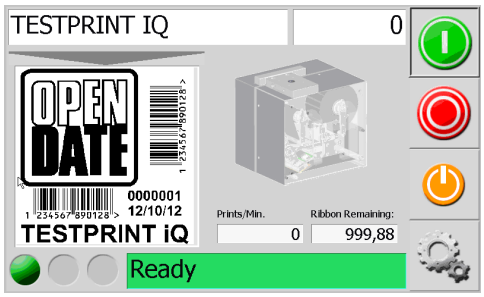
If the magazine is loaded with ribbon and fitted to the printer body a Ready message will be displayed at the bottom of the Editor home screen as shown.

The IQ is ready to print.

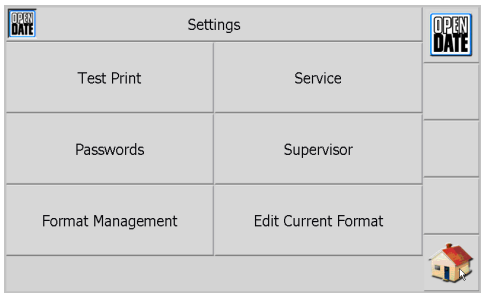


If the magazine is not present this screen is displayed.

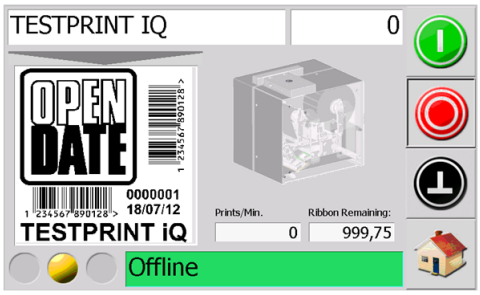
5.1 Test Printing



To test that the printer is working correctly a format must be loaded (refer to software manual for details).
To perform a test print the printer must be put into Test Print mode.
To do this first press the Settings button.



Then on the new screen press the “Test Print” button.
To return to the main screen press the “Home” button.



The “Test” button will now be displayed on the home screen.
To operate the printer press the “Test” button.

To continuously cycle the printer press the “Start” button and to stop this press the “Stop” button.

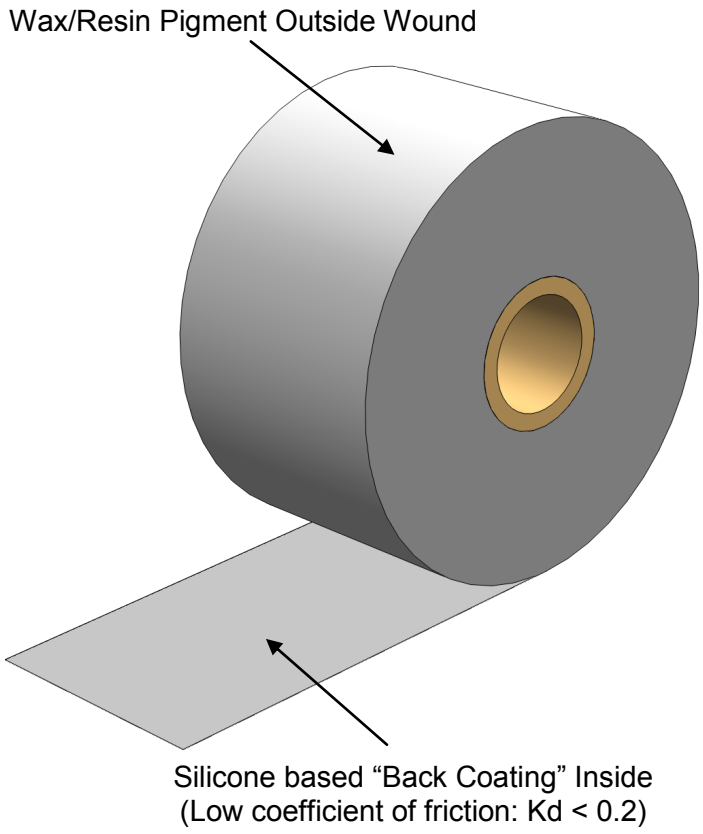
To exit the test print mode press the “Home” button twice.

6.0 Ribbon Specifications

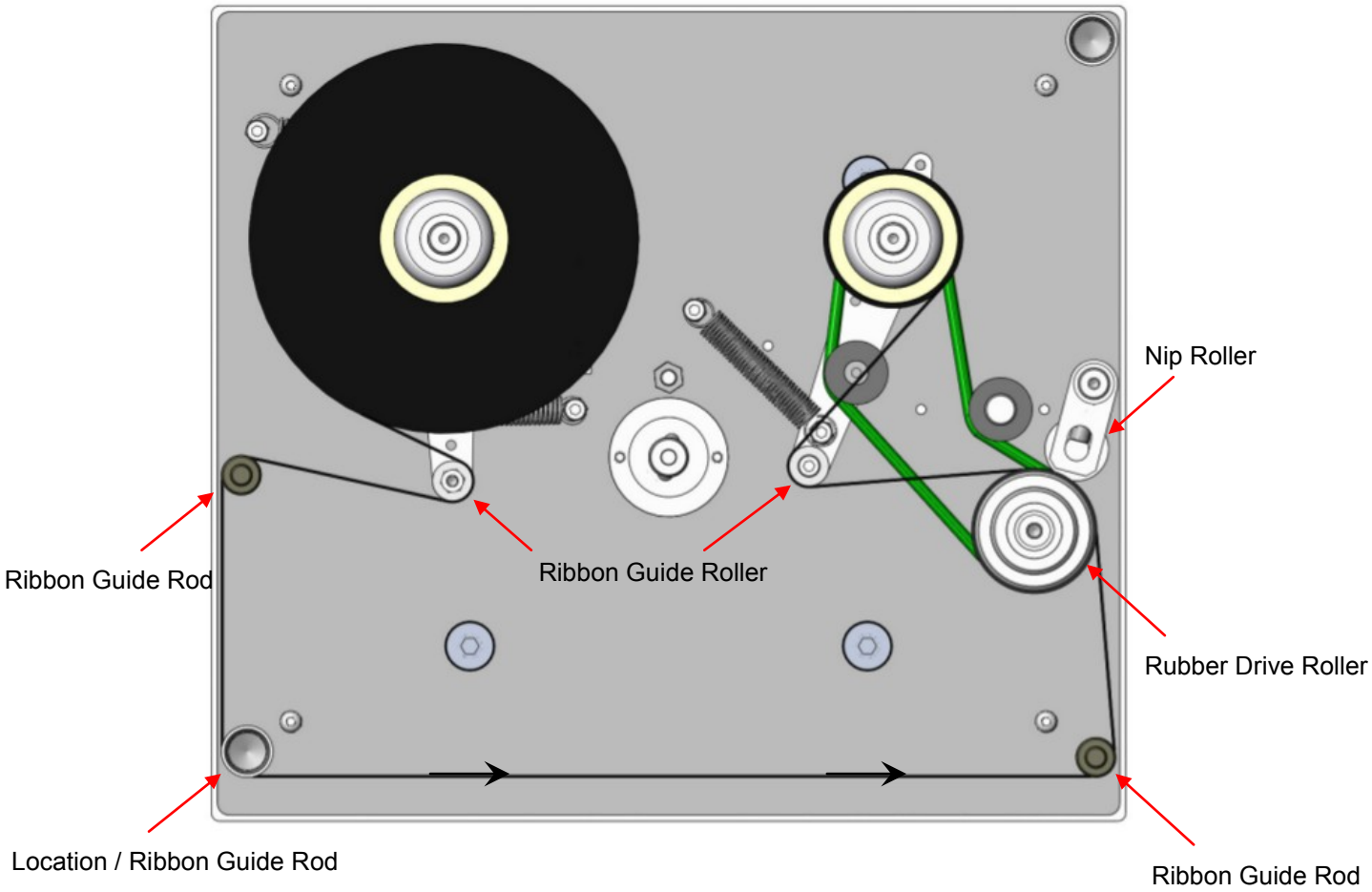
The Thermocode iQ printer is designed to use ribbon rolls of up to 1000 metres in length, however it is possible to use it with 1200 metre rolls.
Thermocode ribbon must be wound ink-out.

A wide range of colours and grades are available. Please contact our sales office for further details.

Ribbon Width	55mm
Ribbon Diameter	98mm
Core Diameter	25.4mm
Core Material	Cardboard



7.0 Fitting a New Ribbon Roll



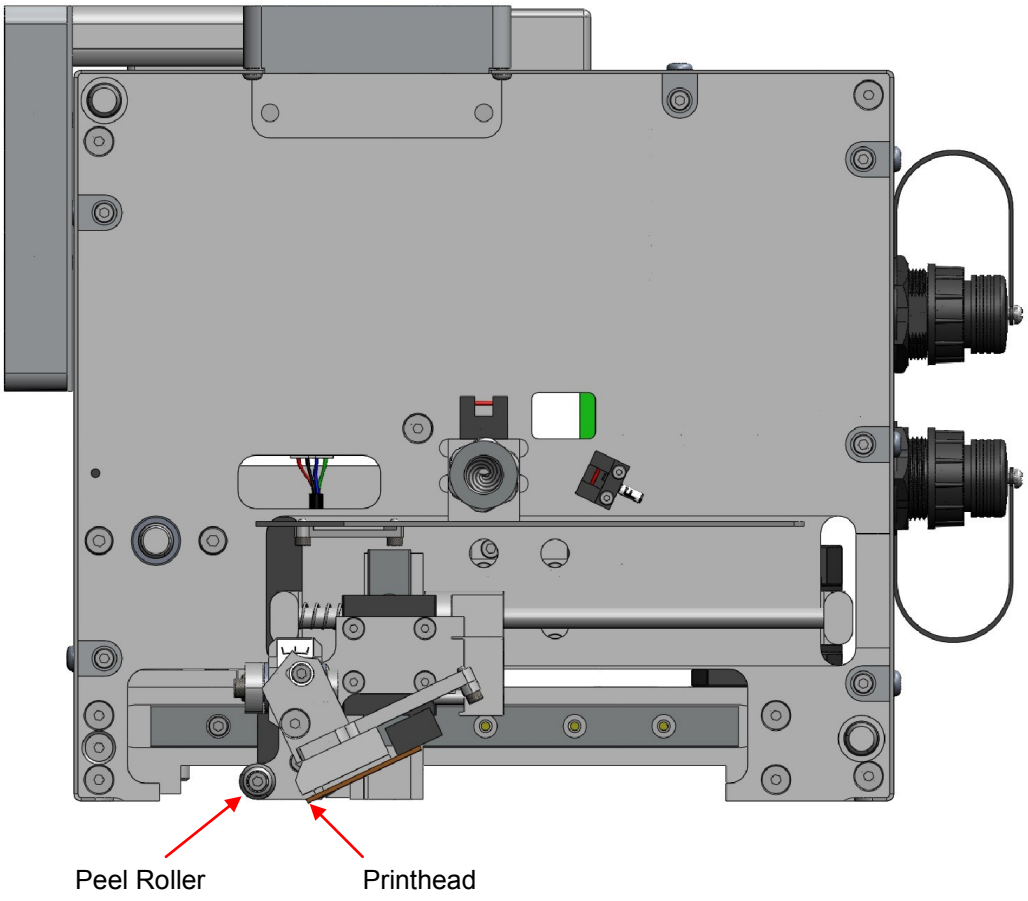
1 Remove used ribbon and cardboard core from the rewind spool and dispose of correctly.
2 Remove the empty cardboard core from the feed on spool and refit to the rewind spool.
3 Clean all the following rollers and rods to remove any residue that has built up.
(Open Date suggests using Isopropanol and a lint free cloth)
    Nip Roller
    Drive Rubber Roller
    Fixed Rods
4 Fit the new reel of ribbon, ensuring that the direction of take off is correct.
5 Disengage the nip roller and thread the ribbon around the magazine as shown above. Fix the end of the ribbon to the empty cardboard core on rewind spool using self adhesive tape.
6 Re-engage the nip roller.
7 Wind on the ribbon by a few turns of the drive roller to ensure that it is uncreased, under tension and is tracking correctly.

8.0 Routine Maintenance

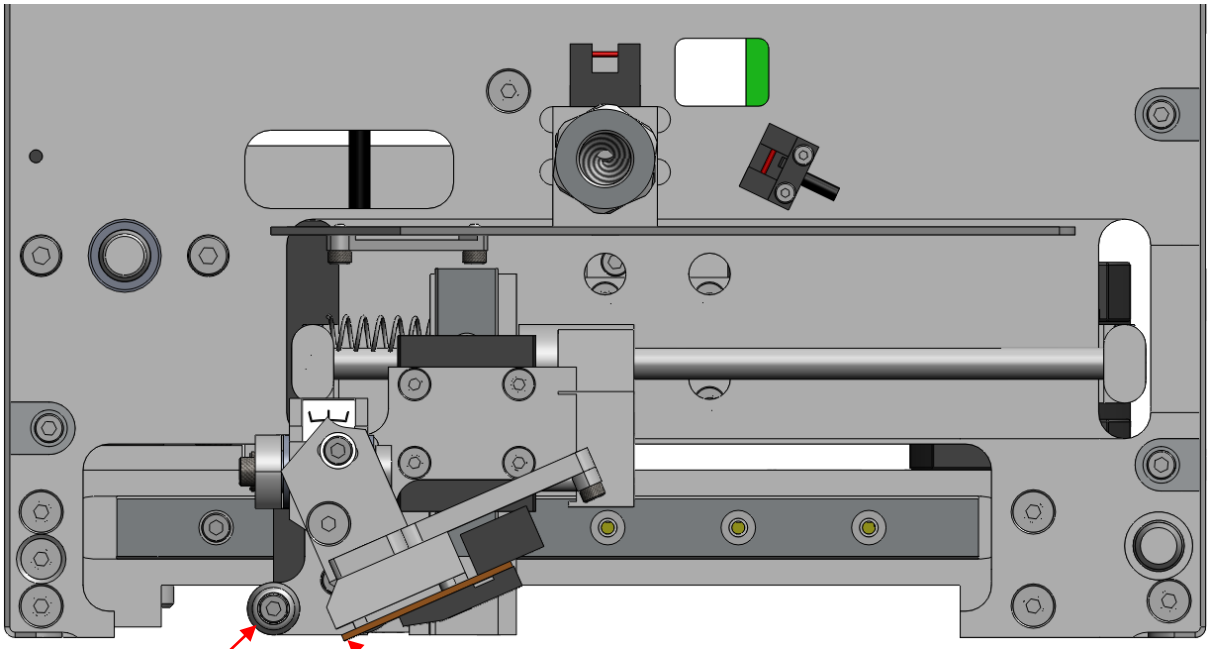
Open Date recommends routine inspection of the Thermocode iQ Printer to ensure continued good quality printing.
For cleaning we recommend using Open Date Printhead Wipes or Isopropanol cleaning fluid and a lint free cloth.

1 Printhead.
The printhead should be cleaned at least once per day or when loading a new roll of ribbon.
2 Peel Roller
The Peel Roller should be cleaned daily or when fitting a new roll of ribbon.
3 Print Pad
The print pad should be kept clean and free from debris.

Regular inspection should be carried out on the printer body to ensure that all components are free of dust and other foreign particles. To clean the inside of the printer body we suggest using a soft brush or a lint free wiper (do not use compressed air).



8.1 Cleaning the Printhead



The thermal printhead should be cleaned at regular intervals, ideally prior to the first use of the day before powering up and printing whilst the printhead is still cool. However the time intervals will also depend on machine use, environment, and type of thermal ribbon being used .
If the printer has been printing and you need to clean the printhead and peel roller allow a few minutes for the printhead to cool before proceeding.

1 Power down the iQ and remove the magazine.
2 Use an *Open Date Printhead Wipe to remove any residue from the printhead.
(The area to be cleaned is on the bevelled edge of the printhead as shown)
3 Clean the peel roller as shown

NOTE
Thermal printheads are delicate and can be easily damaged. They should not be cleaned with abrasive or hard materials or tools such as wire wool or screwdrivers.

Once the printhead and peel roller have been cleaned replace the magazine power up and print to check the print quality. *If the overall quality is poor, or some of the dots are not printing, the printhead may need to be adjusted or replaced.*

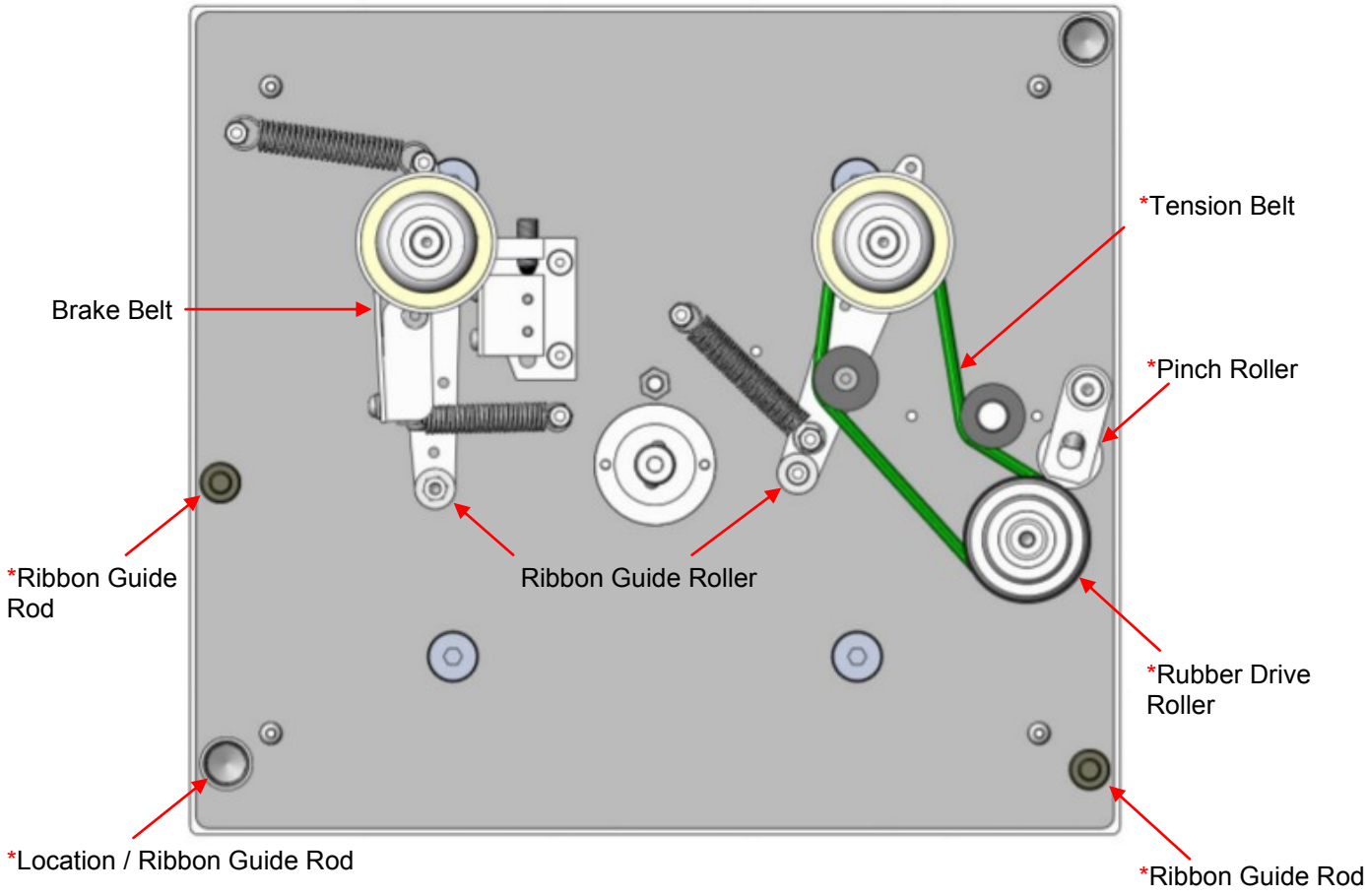
*Open Date Printhead Wipes are available to order in packs of 50 (Part Number WIP765165)

8.2 Magazine Cleaning and Inspection

The magazine and in particular the ribbon guides and rollers should be regularly inspected for damage and cleaned.
The Rubber Drive roller and the brake and tension belts should be inspected for wear or damage and replaced if necessary.
Particular care should be taken when holding the magazine as ribbon guides, guide rollers and location rods can be damaged if it is dropped which may cause ribbon alignment problems.

To clean the magazine ribbon guides and rollers;

1. Remove the magazine.
2. Remove the ribbon from the magazine.
3. Clean all of the ribbon guides, guide rollers and location rods and the tension belt using Isopropanol cleaning fluid and a lint free cloth.

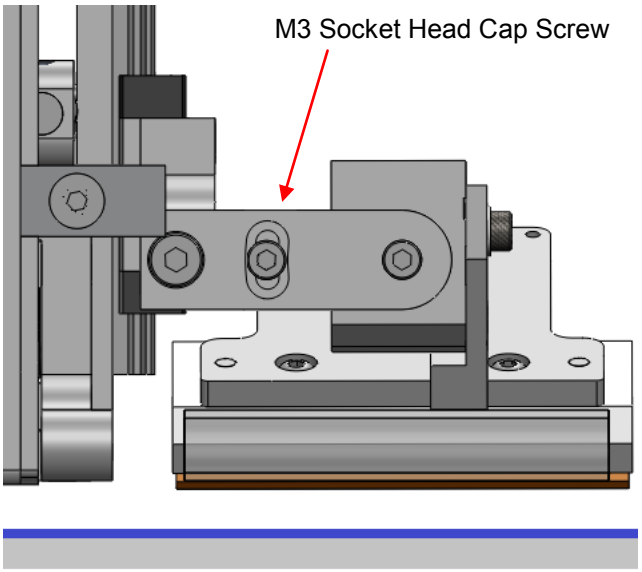


***Clean all parts indicated above**

9.0 Printhead Levelling & Replacement

9.1 Levelling

To enable consistent print quality across the full width of the printhead it is essential that the head is level with the print pad whilst idle so that even pressure is applied during the print cycle. Some self-levelling is built in to the printhead mounting bracket but in order for this to function correctly it is recommended that the printhead is manually levelled as detailed below.

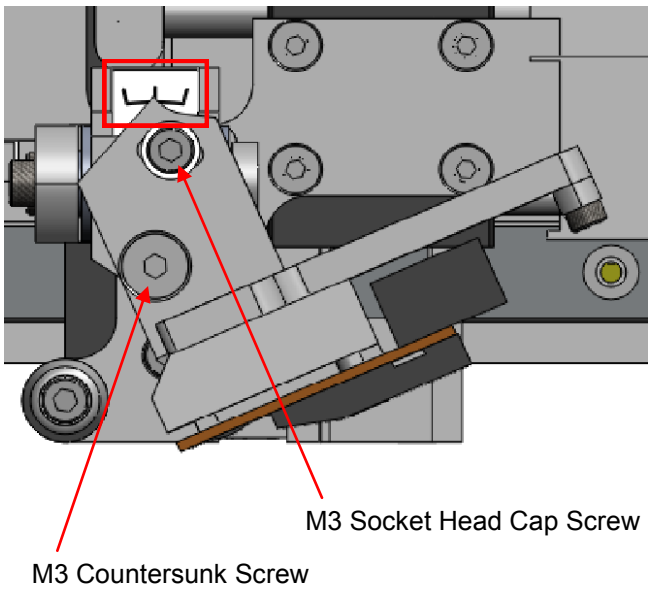


To level the printhead to the print pad;

1. Switch off the power to the Thermocode iQ and remove the ribbon magazine.
2. Loosen the M3 socket head cap screw (shown left).
3. Adjust the printhead so that is level with the print pad.
4. Tighten the M3 socket head cap screw.
5. Test print to check print quality and re-adjust if needed.

9.2 Printhead Replacement & Angle Adjustment

Adjusting a printhead to it's optimum angle will enable it to produce the best print quality at the most efficient settings and thus extend it's life.
It should not be necessary to adjust the printhead angle of a factory supplied printer.



To replace a printhead assembly (part no ASY782010)

1. Switch off the iQ and remove the magazine.
2. Disconnect the printhead ribbon cable and earth lead.
3. Release the printhead assembly by removing the M3 socket head and countersunk screws (shown left).
4. Replace the printhead assembly.
5. Reconnect the printhead ribbon cable and earth lead.
6. Adjust the angle of the printhead using the scale highlighted to the angle given on the documentation supplied with the head.
7. Tighten the M3 screws.

10.0 Troubleshooting

10.1 Print Quality Problems

Problem	Possible Cause	Solution
Lines and or streaks	Incorrect ribbon tension	Adjust ribbon brake on magazine
	Printhead angle (roll & pitch)	Adjust printhead to be level with print pad and to its correct angle
Print quality gradually lightens	Loss of vertical position / profile not correct for application.	Recalibrate printer by removing and replacing the magazine
No print output although printhead scans	Check printhead resistance code (see software manual)	Check printhead resistance code. Generate new code for same resistance
Print not consistent over printed area?	Ribbon not compatible with substrate.	Try alternative ribbon for purpose.
	Temperature burn, settings too low.	Increase burn. (Low printing temperatures can give the effect of the edges of characters appearing faint or ragged)
	Damaged or dirty print base.	Clean and check for any imperfections. Replace if necessary. (see note below)
	Printer not correctly mounted in frame.	Check and adjust if necessary
	Printer frame not manufactured to correct dimensions, clearance under printer excessive.	See Standard Frame measurements drawings at the end of this manual.
	Printhead dirty.	Clean the printhead and test print on plain fax paper to confirm the condition of the printhead.
	Printhead pixels burnt out.	
	Ribbon indexing not enough.	See previous page.
	Ribbon tracking on printer, causing creasing.	See previous page.
	Ribbon perforated or broken.	See previous page.
	Ribbon ink coating inconsistent.	Return ribbon to supplier for testing

Print Pads

Factory supplied print pads are 45-50° shore hardness rubber bonded to an aluminium backing sheet and ground flat. Pads will become uneven with use and this will affect print quality as will any imperfections.

10.0 Troubleshooting

10.2 Ribbon Problems

Problem	Possible Cause	Solution
Ribbon Indexing insufficient (Overlapping Prints)	Cardboard core does not fit the rewind spool correctly, or is missing.	Fit correct cardboard core, ensure that it is a good fit on the hub.
	Foil not attached to cardboard core correctly.	Use adhesive tape to attach the ribbon to the cardboard core and wind on a few turns.
	Printer rods or printhead assembly are dirty.	Clean printer rods and printhead as described in maintenance section.
	Brake belt on feed spool is damaged, worn or dirty.	Renew brake belt.
	Tension arm spring tension on brake belt not set correctly.	Adjust brake belt correctly, when functioning correctly the tension arm should be about 6mm from the stop pin.
Ribbon Indexing Excessive	The Format design has a space before printing any characters.	Change the format design so there is only 1mm from the “X” datum to the first characters to be printed.
	Ribbon may be sticking to substrate being printed, and being pulled along.	Adjust the printhead position from the substrate, possibly the clearance is insufficient and the foil is being indexed along with the substrate. Service Engineer may be required.
Ribbon Breaking or Perforated	Printhead rods, rollers or printhead assembly are is dirty.	Clean printer and printhead as described in maintenance section.
	Ribbon may be sticking to substrate being printed and being pulled along.	Adjust the Printhead position from the substrate, possibly the clearance is insufficient and the foil is being indexed along with the substrate. Service Engineer may be required.
	Temperature “BURN” values may be set to high for the substrate being printed.	Reduce “BURN” values of format to achieve acceptable print quality.
	Ribbon indexing problems, prints overlapping each other, weakening the ribbon.	See above for overlapping prints.
Ribbon Tracking	Printer fixed rods, lower roller or printhead assembly are dirty, through build up of wax/resin residue.	Clean fixed rods, lower roller and printhead as described in maintenance section.
	Ribbon may be sticking to substrate being printed, and being pulled to one side.	Adjust the printhead position from the substrate, possibly the clearance is insufficient and the foil is being indexed along with the substrate. Service Engineer may be required.
	Printer may have been dropped, damaging the lower roller or damaged tension arm.	Call for Service Engineer or send back to manufacturer for checking.

10.0 Troubleshooting

10.3 Power Supply Related Faults

Problem	Cause	Solution
No power to printer / 24 Volt led not lit	Power Supply problem	Replace fuse. If fuse continues to blow return power supply for inspection.
No power to printer / 42 Volt led not lit		

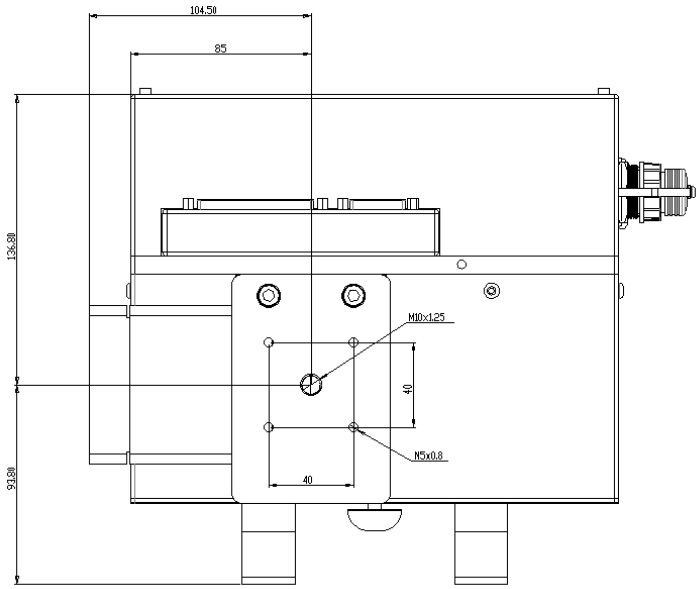
10.4 Stepper Motor Related Faults

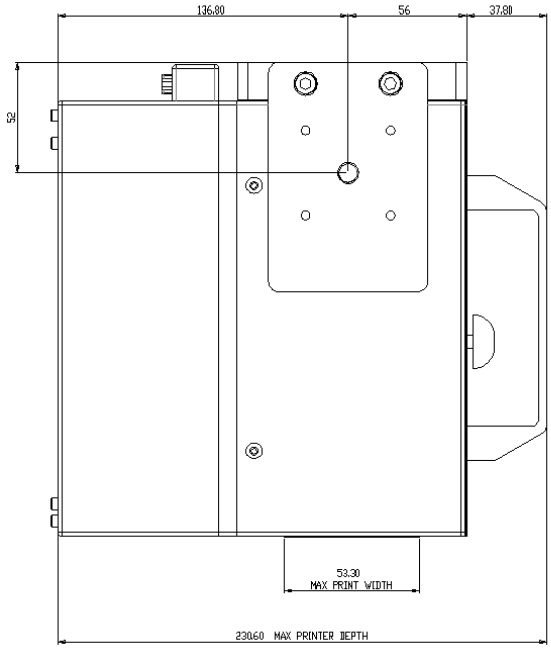
Problem	Cause	Solution
Stepper motors noisy but working ok.	Motor mounting out of adjustment.	Check mounting. Re-adjust if necessary.
	Profile not correct for application.	Contact Open Date requesting profile adjustment.
Stepper motors very noisy.	Connection to stepper motor failed.	Check connection and adjust
Stepper motors have poor movement.		
Stepper motors have no movement.		
Stepper motors very noisy.	One phase of stepper motor burnt out or connection failed.	Replace motor.
Stepper motors have poor movement.		
Stepper motors have no movement.		
Stepper motors very noisy.	Stepper motor drive board damaged	Replace stepper motor drive board.
Stepper motors have poor movement.		
Stepper motors have no movement.		
Stepper motor not moving.	Stepper motor failed.	Check and replace motor
	Stepper motor board failed.	Check and replace board
	No 42 volt supply.	Check power supply
Horizontal or vertical stepper motor moving slowly or does not stop	Sensor fault.	Check and replace sensor.

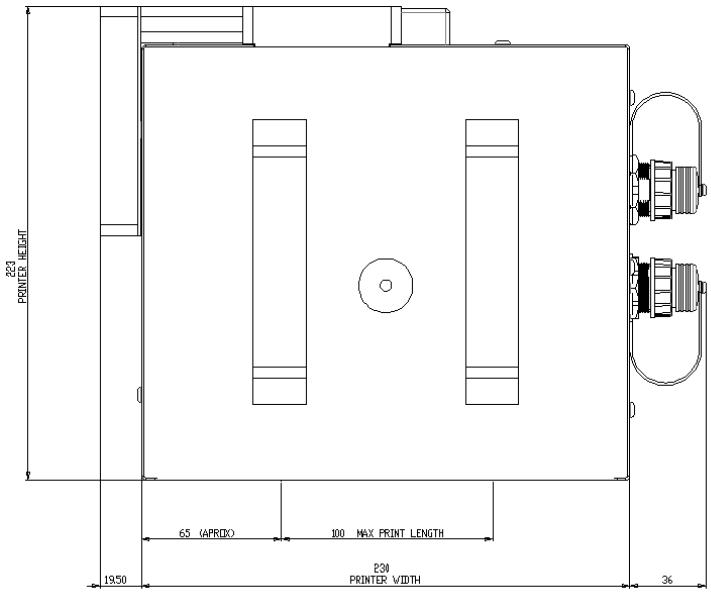
10.5 Sensor Related Faults

Problem	Cause	Solution
Horizontal or vertical stepper motor moves constantly away from home position.	Failed Horizontal or Vertical Sensor.	Replace Sensor
Broken ribbon / end of ribbon not seen.	Back tension arm on magazine out of adjustment.	Re-adjust back tension arm.
	Sensor failed.	Replace Sensor.
Magazine not seen when on printer body.	Failed / broken magazine sensor.	Replace Sensor.
	Magazine sensor pin out of adjustment.	Re-adjust Magazine sensor pin.

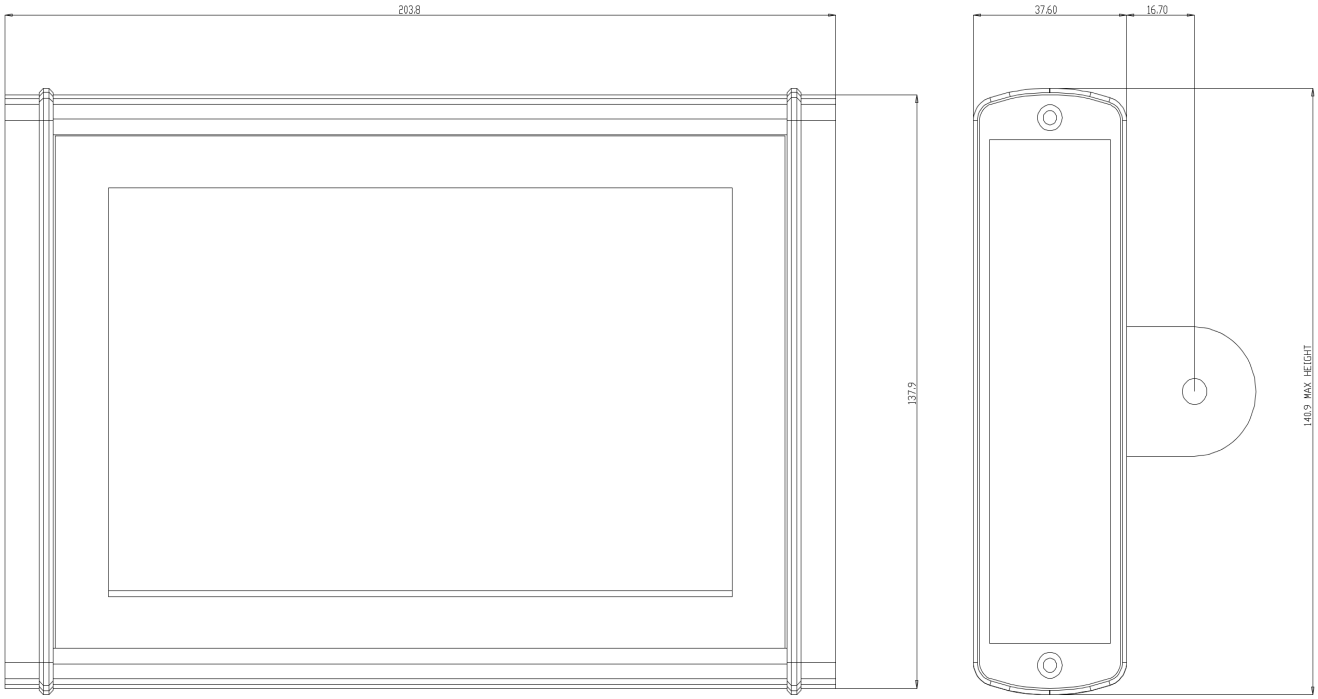
11.0 Thermocode iQ Printer Dimensions



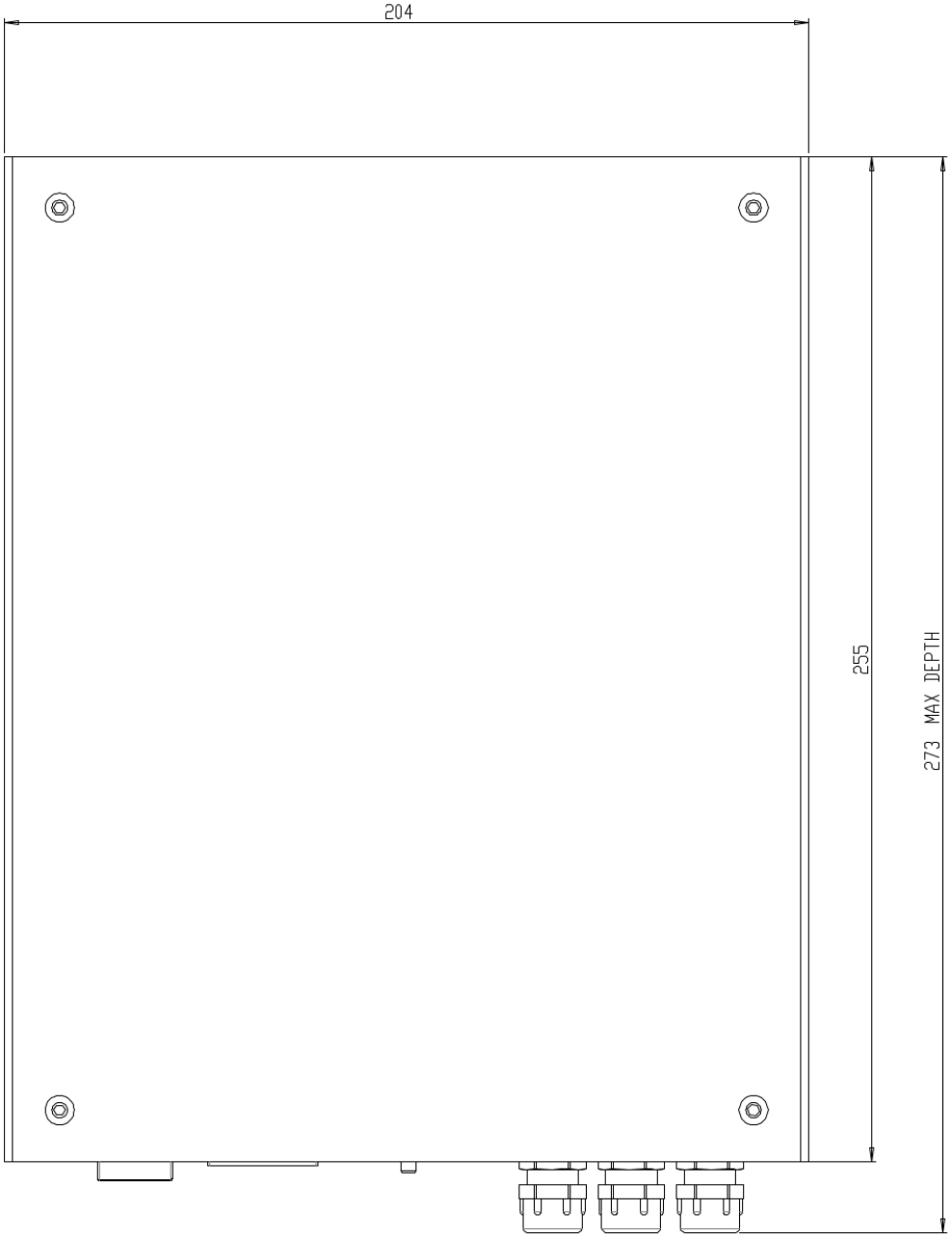


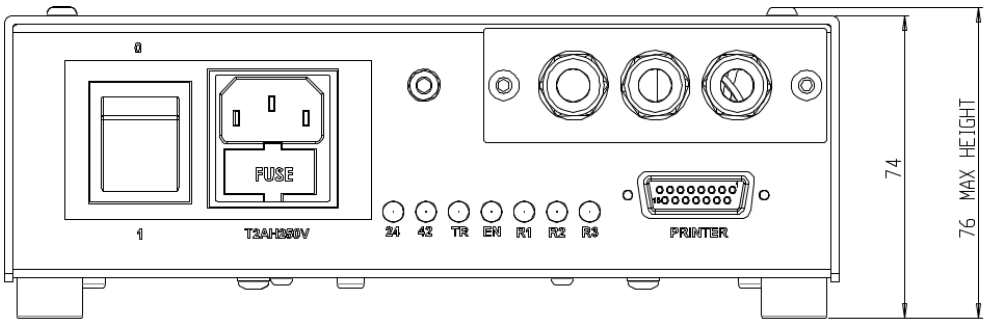


12.0 Thermocode iQ Touch Screen Dimensions

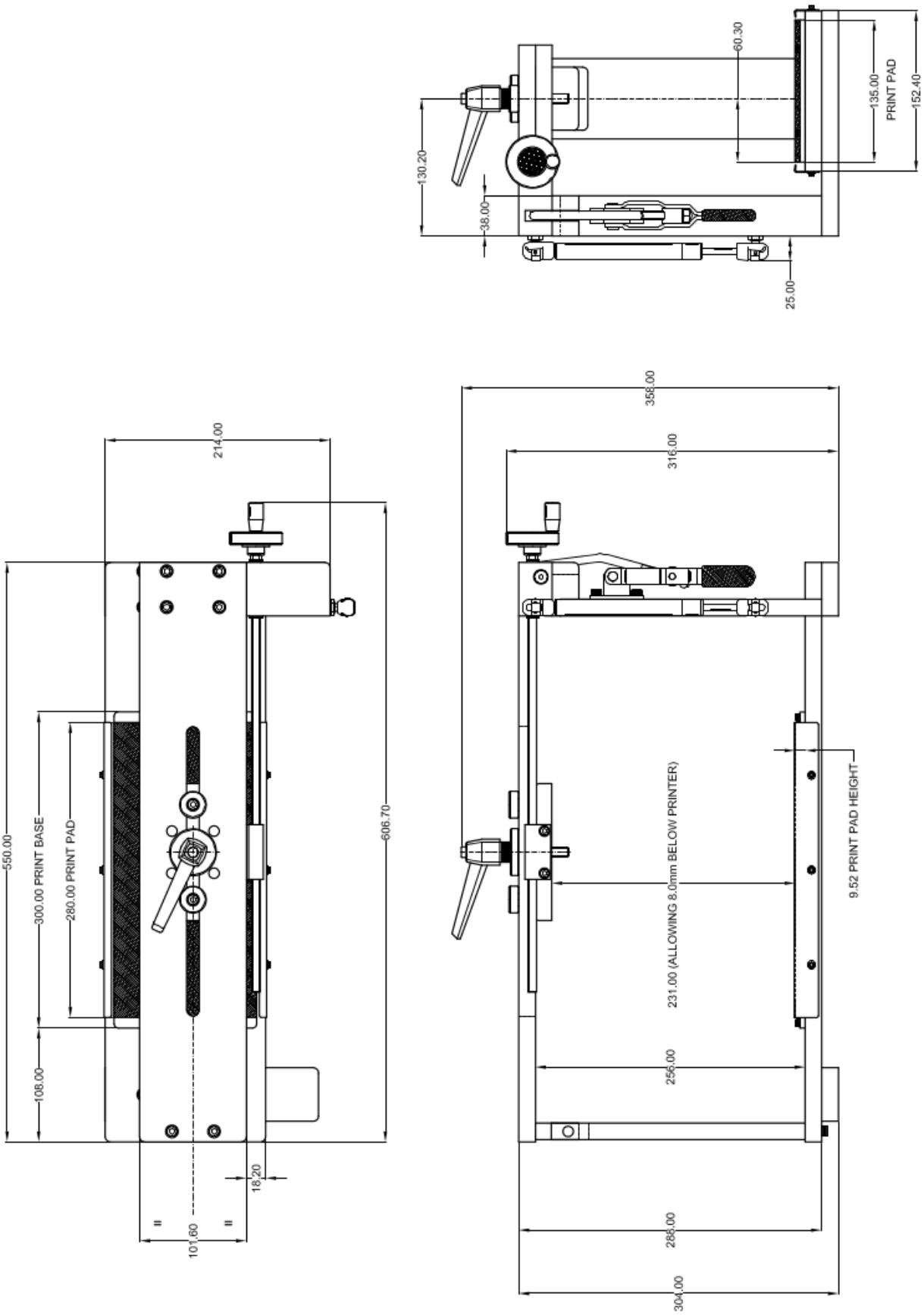


13.0 Thermocode iQ Power Supply Dimensions





14.0 Thermocode iQ Standard Mounting Frame Dimensions



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