HAEMATOSPIN 1400

(AUTOMATIC BRAKING)

01400-00

Instruction Manual
240 Volt

HAWKSLEY

PART NUMBER FOR THIS MANUAL 21849-00

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1. COMPANY INFORMATION

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2. CONTROLS DIAGRAM

1. **Power Cord**
2. **Power Cord Fused Input Socket**
3. **Lid Lock Assembly**
4. **Power Indicator**
5. **Pulse Switch**
6. **Timer**

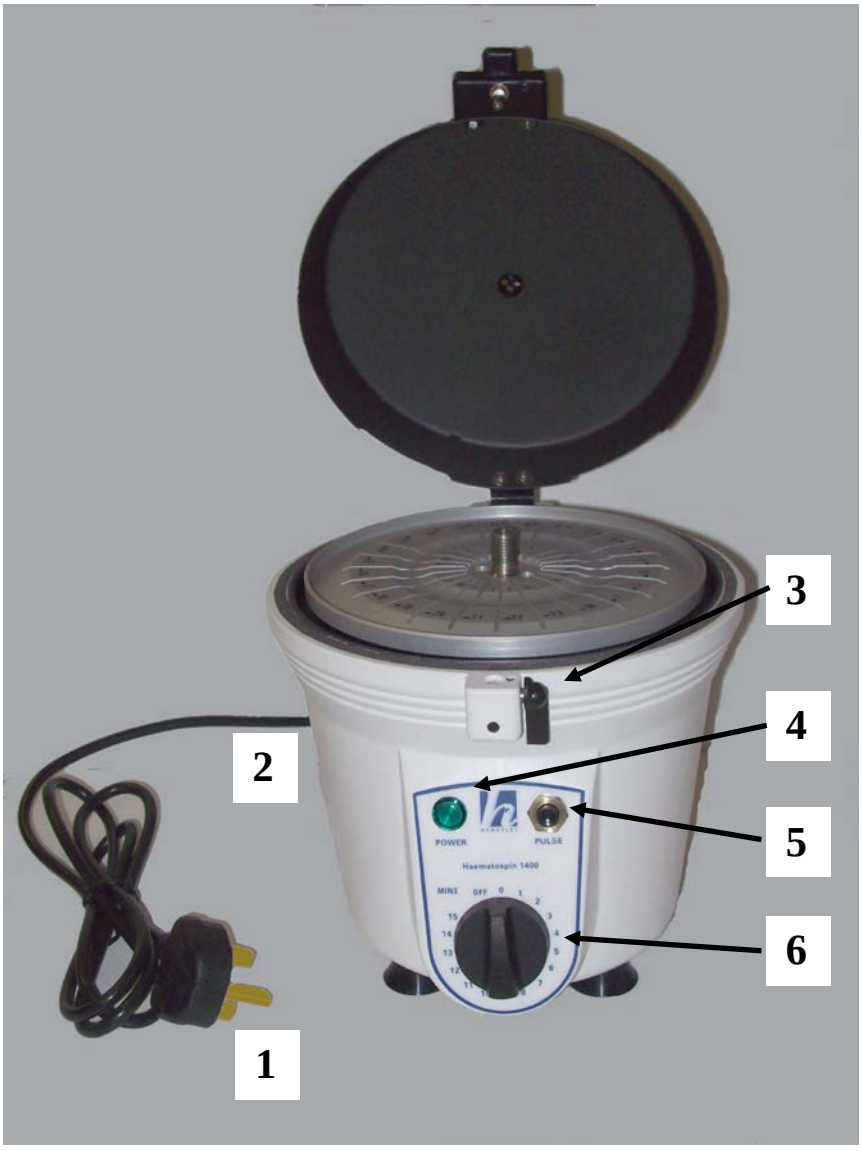


Figure 1

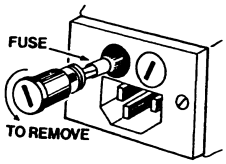
3. CONTROLS & SYMBOLS

Lid Locked

Locking lever in UP position. Switch interlock engaged

Lid Unlocked
Locking lever in DOWN position. Switch interlock disengaged.

Power Cord connection
Power cord and moulded socket.
In accordance with international colour codes:-
BROWN (Live)
BLUE (Neutral)
GREEN/YELLOW (Earth)



Fused Input Socket
Fuses 3.15 Amp (F).
Caution: Isolate from power source before removing fuses.

1. Indicator Light
Illuminated when the power supply is connected.

2. Pulse
Push button momentary action. Engages the motor whilst the button is pushed in.

3. Timer
Graduated 0-15 in 1 minute increments. Engages the motor for desired time run. Automatic switch off at zero.

4. INSTRUCTIONS FOR USE

INSTALLATION:

1 Inspect the packaging for damage. If you suspect damage to the device, notify the supplier or manufacturer immediately quoting model and serial number.

2 Unpack the machine and check the parts against the following list.

1	Instruction Manual
2	Haematospin 220/240 volt
3	24 Place Haematocrit Rotor & lid, or selected rotor
4	2 Rotor Screws
5	Power cord
6	Fuse pack (Spares)
7	1 Pkt. 100 off Heparinised Tubes
8	1 Pkt. 100 off Plain Tubes
9	1 Tray Cristaseal

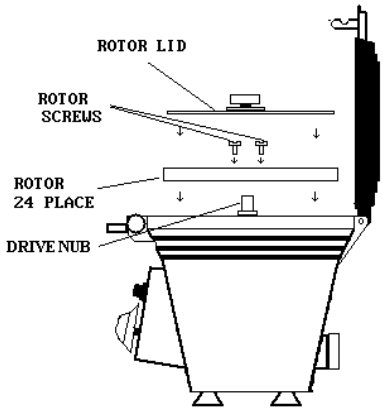
3 The unit comes provided with a UK style 5 Amp fused plug on an IEC mains lead. The lead is wired in accordance with international colour codes :
Brown : Live Blue : Neutral Green/yellow : Earth

4 Check that the specifications on the rating plate corresponds to supply voltage. The rating plate is located on base of the centrifuge.

5 Retain packaging material for further use, should the need arise to return to your distributor or to the manufacturer for service or repair.

ROTOR ASSEMBLY:

1 Unlock the lid and open it to reveal the rotor drive nub location. See diagram to the right.



2 Assemble the rotor onto the drive nub and align the two screw holes. Insert the two fixing screws provided. Tighten them down evenly. Spin the rotor to check concentricity. Check that the rim gasket is properly located on the inner wall of rotor.

3 The Multi Combi, Std Combination & 24 place haematocrit rotor have their own lids – this is to ensure the containment of tube contents should there be any spillage or breakage.

4. Arrange the tubes/containers in the rotor evenly so the rotor remains balanced during operation and screw down the lid firmly.

NB: Always ensure the rotor lid is screwed down firmly before operating the device.

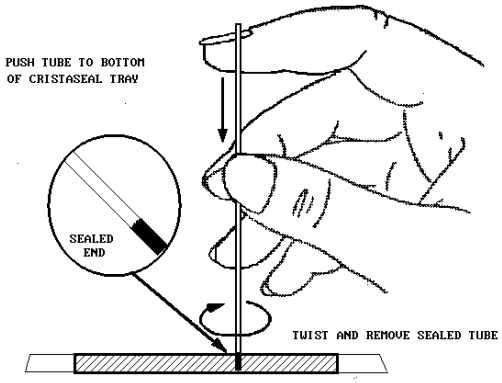
4 . INSTRUCTIONS FOR USE (cont'd)

TUBE SAMPLE PREPARATION

1. Capillary tubes used for centrifugation must conform to British Standard BS 4316 to withstand the forces of centrifugation and give accurate results. Please ensure that the tubes to be used are marked on the packaging "BS4316" or equivalent standard.

2. Draw blood into tube by capillary action to within 15mm from the end. Use **HEPARINISED** tubes for direct capillary blood and **PLAIN** tubes for venous blood rendered incoagulable. Avoid air bubbles in the capillary tube and use the guide on the edge of the Cristaseal tray to check the correct blood volume i.e. 40 - 60mm of blood.

3. Seal the unfilled end of the tube with **CRISTASEAL**, holding the tube at a 90° angle to the Cristaseal tray. Push the tube to the bottom of the tray and then twist and remove the sealed tube.



4. If a capillary tube is broken leaving broken glass in the Cristaseal, the tray must be **DISPOSED OF SAFELY**

5. For centrifugation place the tubes in the numbered slots with the sealed ends pointing outwards. Make sure the sealed ends are actually touching the rim seal gasket at the outer edge of the rotor. No balancing of capillary tubes is required due to the high precision of the rotor.

   NOTE. The rim seal gasket should be changed at least once a month or sooner if deterioration is evident.

6. Always ensure that where provided the rotor lid is screwed down firmly before operating the centrifuge.

   DO NOT OPERATE THE CENTRIFUGE WITHOUT THE ROTOR LID FITTED

   THIS ENSURES THAT THE CONTENTS ARE PROPERLY HELD IN POSITION IN THE ROTOR DURING SPINNING.

4. INSTRUCTIONS FOR USE (cont'd.)

CENTRIFUGE OPERATION

1 Ensure the timer is in the **ZERO** position.

2 Connect the power cord to the inlet socket and a convenient power source. The green **Power Indicator Lamp** will illuminate.

3 Close the lid and ensure that the lever is in the **LOCKED** position.

4 Set the desired run time. Normally 6 minutes is sufficient including initial acceleration to achieve a good separation of blood samples. At the end of the timed run the motor automatically switches off and the automatic brake system operates.

DO NOT MOVE THE CENTRIFUGE WHILE THE MOTOR IS OPERATING

5 When the set time has elapsed, auto-braking will bring the rotor to a stop.
Note: The timer normally shuts off at approx. 30-45 seconds before '0'.
It is recommended to add approx. 30 seconds to the 'set' time from '0' to allow for shut off. This is a characteristic of the timer. For example if the time of 3 minutes is set, set the timer knob to 3 minutes 30 seconds approx. if a time of 5 minutes is set, set the timer knob to 5 minutes 30 seconds approx and so on.

The following is a guideline ONLY for establishing the full run time required for correct blood separation

Set the timer for 4 minutes then operate the centrifuge.
After the rotor assembly has come to a complete stop open the lid and remove the rotor cover.
Check whether a definite separation (blood/plasma) has been achieved.
If separation has been achieved use the 4 minute time setting.
If not, replace the samples with a new set, screw on the rotor cover and close the lid.
Set the timer to 5 minutes and operate the centrifuge to re-check separation.
Iterate as above, adjusting the time setting as necessary.
Samples used for testing can be re-spun for the balance of the full spin time if desired, remembering to add the rotor spin-up and stopping times correctly (see page 11) and the 30 second offset (see 5 above).
The above applies to separation using capillary and/or tubes of larger volume.

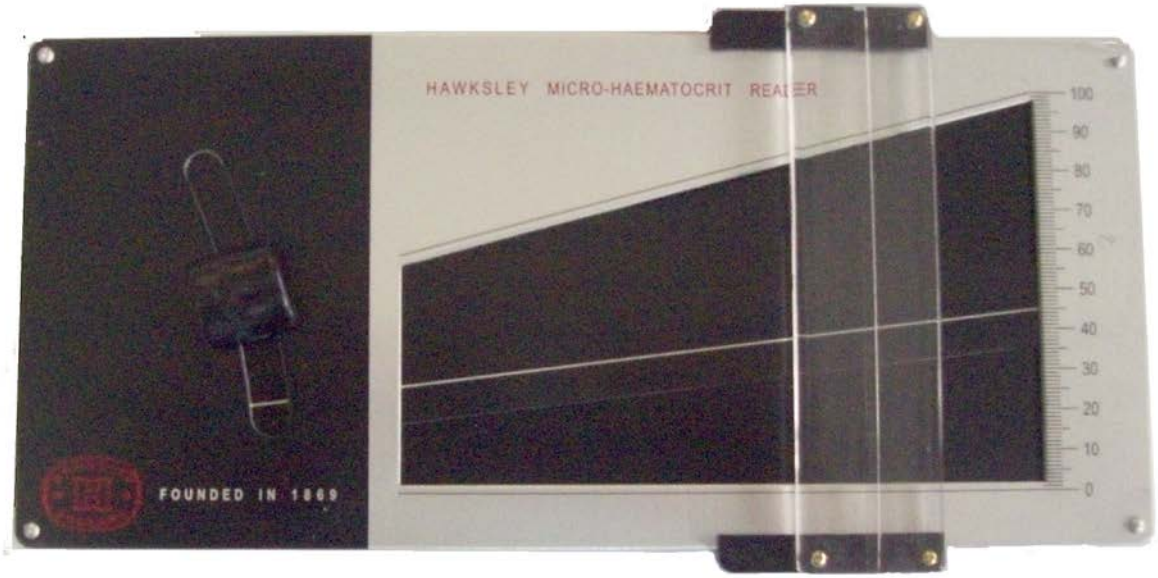
6 When the rotor has **stopped,** unlock and open the lid. All rotors stop within 45 seconds - allow this time to elapse for safety. See braking times on Page 10 for more detail.

7 To remove the rotor lid, unscrew **counter-clockwise,** then lift clear to reveal the tubes.

8 Remove the tubes and read the percentage packed cell volume on the
MICRO-HAEMATOCRIT READER.
Instructions for its use are also to be found on the reverse of the **READER**. If the tubes are not to be read immediately, place them in a vertical position to preserve sharp boundaries.
For **READER** use, see the following pages for instructions.

4. INSTRUCTIONS FOR USE (cont'd.)

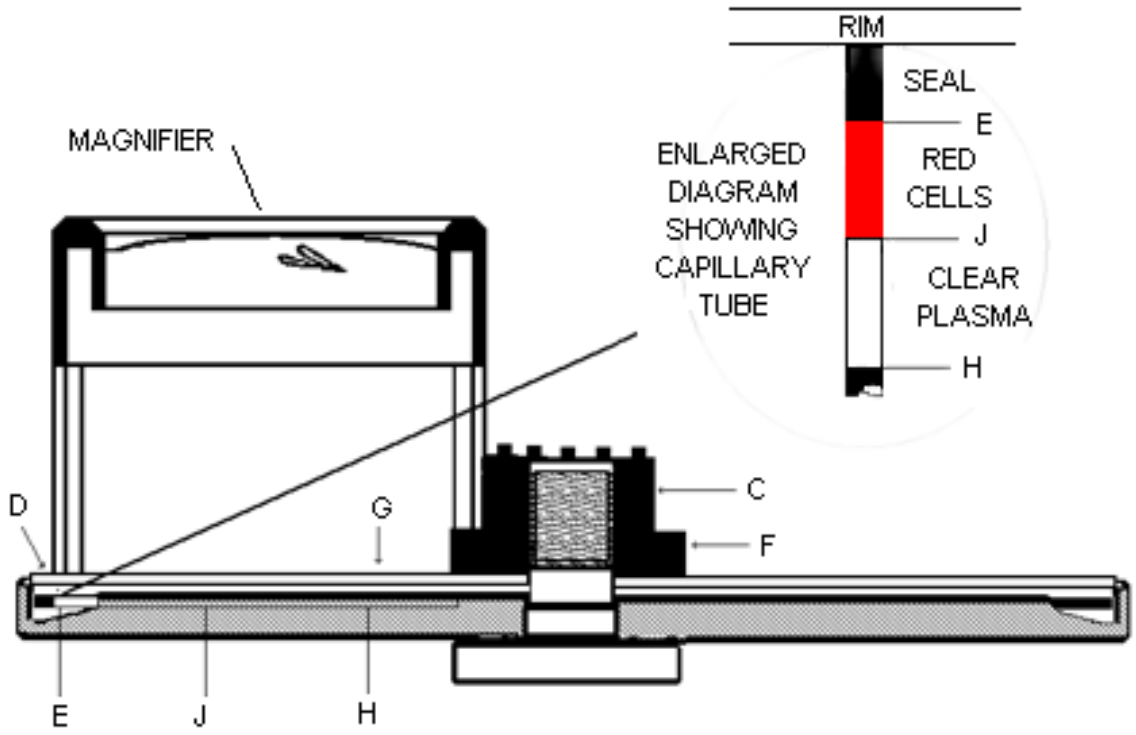
MICRO-HAEMATOCRIT READER



1 Position the tube in the slot so that the base line of the Reader intersects the base of the red cells
2 Move the sliding tube holder left or right until the top line intersects the top of the plasma.
3 Adjust the knob so that the middle line intersects the top of the red cells.
4 Read the percentage P.C.V. off the scale on the right.

4. INSTRUCTIONS FOR USE (cont'd.)

ROTOREADER



1 After centrifugation unscrew the and remove the rotor lid from the rotor.
2 Push the **ROTOREADER** firmly on to the central spindle.
3 Rotate the centrifuge rotor to bring the required tube to be read nearest to you and restrain from further movement by holding rotor edge.
4 Turn the castellated knob 'C', until the base line (outside black line 'D' on **ROTOREADER**) is brought into line with the base of blood column 'E' (the top face of tube seal).
5 For the following operations the centre knob remains stationary on the central spindle:
6 Turn the **ROTOREADER** knob 'F' until the inner spiral black line 'G' coincides with the top of blood column 'H'.
7 Place **MAGNIFIER** onto the rotor reader.
8 Read off the percentage at boundary of packed cells 'J'.
9 Repeat from 3 for the next tube.

NOTE: The **ROTOREADER's** castellated knob ('C') is eccentric so that the device will allow for differing depths and types of tube seal.

IMPORTANT: Do not operate the centrifuge with the **ROTOREADER** attached to the rotor.

4. INSTRUCTIONS FOR USE (cont'd)

PERIODIC INSPECTION, CLEANING AND DISINFECTING

In order to ensure the proper operation of this centrifuge, periodic preventive maintenance is necessary.

INSPECTION

To ensure correct and safe use of the centrifuge, inspect the rotor and lid regularly, using the following procedure:

a) Remove the rotor from the centrifuge by undoing the two fixing screws located near the drive shaft and remove the rubber rim gasket.
b) Clean the rotor and rotor lid using the prescribed method detailed below.
c) Inspect all rotor surfaces for damage, dents, gouges or modifications.
d) Inspect all rotor surfaces, particularly near the drive shaft and fixing screws, for damage, corrosion, hairline cracks, surface pitting or discoloration of the metal.
e) If any of the above conditions are found, the rotor must be replaced with a new one.

Never continue to use an impaired rotor because doing so could result in damage to the centrifuge and injury to operating personnel.

CLEANING AND DISINFECTING

NEVER ATTEMPT TO CLEAN THE ROTOR OR ROTOR LID WHILE THEY ARE INSTALLED ON THE CENTRIFUGE

To clean and disinfect the rotor and rotor lid correctly, use the following procedure:

a) Remove the rotor from the centrifuge by undoing the two fixing screws located near the drive shaft and remove the rubber rim gasket.
b) Some disinfectants and cleaning agents adversely affect the rotor causing corrosion. DO NOT USE Phenolic disinfectants, chlorine bleach solutions, hydrogen peroxide, saline solutions, acids and halogen based bleaches.
c) Only Ethanol (70%), mild detergents and hot water are recommended.
d) In cases of extreme contamination, the rotor and lid may be steam cleaned or autoclaved under standard conditions. Remember to remove and dispose of the rubber rim gasket as this will not withstand autoclave temperatures.
e) After disinfecting / cleaning, the rotor and lid should be thoroughly rinsed in hot water, dried and re-inspected for hairline cracks and other defects which might have been hidden by dirt and corrosion.
f) Re-attach the rotor to the centrifuge using the two fixing screws, taking care not to damage or scratch the rotor surface. Replace the rotor lid only to finger tightness.

The use of other than genuine Hawksley replacement parts will void all performance claims and warranties.

5 ORDERING INFORMATION

CENTRIFUGES (EXCLUDING ROTORS)

01400-00	Haematospin 1400 220V/240V
01401-00	Haematospin 1400 110V/115V
01410-10	Haematospin Vetspin Dual Speed 220V/240V

ROTORS

01971-00	Rotor Haematocrit 24 Place	(Capillary Tubes length 75mm 75 µl)
01986-00	Rotor Combi 16 way	(Capillary Tubes length 75mm 75 µl and Micro Tubes 1.5 to 2ml)
01985-00	Rotor Multi-Combi 8H & 4x4T	(Capillary Tubes length 75mm 75 µl and Micro Tubes 1.5 to 4ml)
01881-00	Rotor 20 Place (Acetal) 30°	(Micro Tubes 1.5 To 2ml)
01890-00	Rotor 8 Place (Acetal) 30º	(Micro Tubes 1.5 To 2ml)

ROTOR TYPE	Fast Speed (rpm)	R.C.F (g)	Brake Time (secs)	Slow Speed (rpm)	R.C.F (g)	Brake Time (secs)
Haematocrit 24 place H	11,700	14,000	25	5,700	3,300	17
Combination 16H & 16T	11,300	13,000	45	5,500	3,100	30
Multi-Combi 8H & 4x4T	11,100	12,500	45	4,600	2,200	30
Fixed angle Acetal 20T	11,800	14,000	25	5,800	3,400	18
Fixed angle Acetal 8T	11,000	14,000	8	9,000	6,000	6

H = Haematocrit capillary tubes T = Other Tubes

Notes

1. Above data will vary with each system and is issued as a guide only.

2. The spin-up (acceleration) time is approximately twice the stopping (brake) time.

3. SLOW SPEED data is only applicable to the 01410-00 Vetspin Dual Speed

01971-00 Rotor
Standard 24 Place

01890-00 Rotor
8 Place Acetal

01881-00 Rotor 20
Place Acetal

01985-00 Rotor
Multi-Combi 8H & 4 x 4T

01986-00 Rotor Combi
16way

5. ORDERING INFORMATION (cont'd)

ACCESSORIES

01502-00	Reader
01503-00	Cristaseal (Box 10 Trays)
01504-00	Rim Seal Gasket (Pkt 20)
01560-00	Rotoreader And Magnifier
01561-00	Magnifier
01562-00	Rotoreader
01603-00	Capillary Tubes Heparinised 75mm (Box 10 X 100)
01604-00	Capillary Tubes Plain 75mm (Box 10 X 100)
01605-00	Capillary Tubes Heparinised 75mm(Box 1000)
01606-00	Capillary Tubes Plain 75mm (Box 1000)
01902-00	Lid Cushion
01989-00	Combi rotor gasket (pkt 10)
21804-00	Baffleplate

6. QC TEST REPORT

UNIT Haematospin 1400 CATALOGUE NO 01400-00 SERIAL NO.....

BATCH NO..... VOLTS 240 MOTOR NO.....

PCB NO…… CARD NO..... QC BY.....

DATE.....……

TEST REPORT

1.	Lid catch and switch adjustment		..... **TICK**
2.	Timer operation		..... **TICK**
3.	Pulse button operation		..... **TICK**
4.	Rotor balance		..... **TICK**
5	Speed accuracy	High Speed: RPM 10,500 to 12,000 (using rotor – Std 24 place)	.....**RPM**
6.	Auto-braking system function (Std. rotor 25sec. approx.)		..... **TICK**
7.	Rating plate - Correct details		..... **TICK**
8.	General finish and appearance		..... **TICK**

ELECTRICAL SAFETY CHECKS

9.	Earth leakage current at 110% rated supply voltage (Below 750ua)	PASS .....ua
10.	Dielectric strength test at 1000 volts for 1 second	PASS ..... **TICK**
11.	Earth bond test 25 Amps for 5 seconds resistance not more than 0.1 ohm	PASS .....OHM

7 IEC 601 Safety test report

8. SPECIFICATION

Hawksley and Sons Limited
Marlborough Road
Lancing Business Park
Lancing
West Sussex BN15 8TN
England
Tel: +44(0)1903 752815
Fax: +44(0)1903 766050

This is an IVD Device.

E mail:enquiries@hawksley.co.uk
www.hawksley.co.uk

TYPE:	Haematospin 1400 (Automatic braking)
MODEL NO.:	01400-00
CLASSIFICATION:	Class 1 Equipment
SHOCK PROTECTION:	Type B
DEGREE OF MOBILITY:	Portable
MODE OF OPERATION:	Intermittent
DUTY CYCLE:	75% (Fifteen minutes on five minutes rest)
POWER CONSUMPTION:	380 Watts at 220/240V, 50 Hz AC.
FUSES:	External Mains F1 and F2 3.15 Amp quick blow
MOTOR:	High precision, closed frame, AC/DC series wound brush gear. Class B insulation. Rated 220/240V at 50 Hz.
TIMER:	Full scale 0-15 minutes graduated in 1 minute increments. Automatic switch off at zero. Single pole switch rated 10 Amps at 240V AC
PULSE:	Push button single pole change over micro-switch, rated 10 Amps at 240V AC
POWER:	Neon indicator – Colour Green
SPEED	High Speed: 12000 rpm approx. (24 place rotor)
R.C.F.:	High 14000 × G with 24 place rotor
ACCELERATION:	0 - 11800 rpm within 60 secs with 24 place rotor
BRAKE TIME:	11800 rpm within 25 secs with 24 place rotor
WEIGHT:	5.1 kg nett
DIMENSIONS:	225 mm High × 220 mm Dia. (Foot-print is 160 mm diameter)
CONSTRUCTION:	Body - Die-cast aluminium LM6 Lid - Steel spinning
FINISH:	Body - White polyester powder coated Lid - Black Sparkle polyester powder coated

All specifications are accurate at the time of printing. In line with Hawksley's policy of continuous improvement, the right to modify the product specifications described is reserved, without advance notice.

9. TECHNICAL DESCRIPTION

SYSTEM BLOCK DIAGRAM

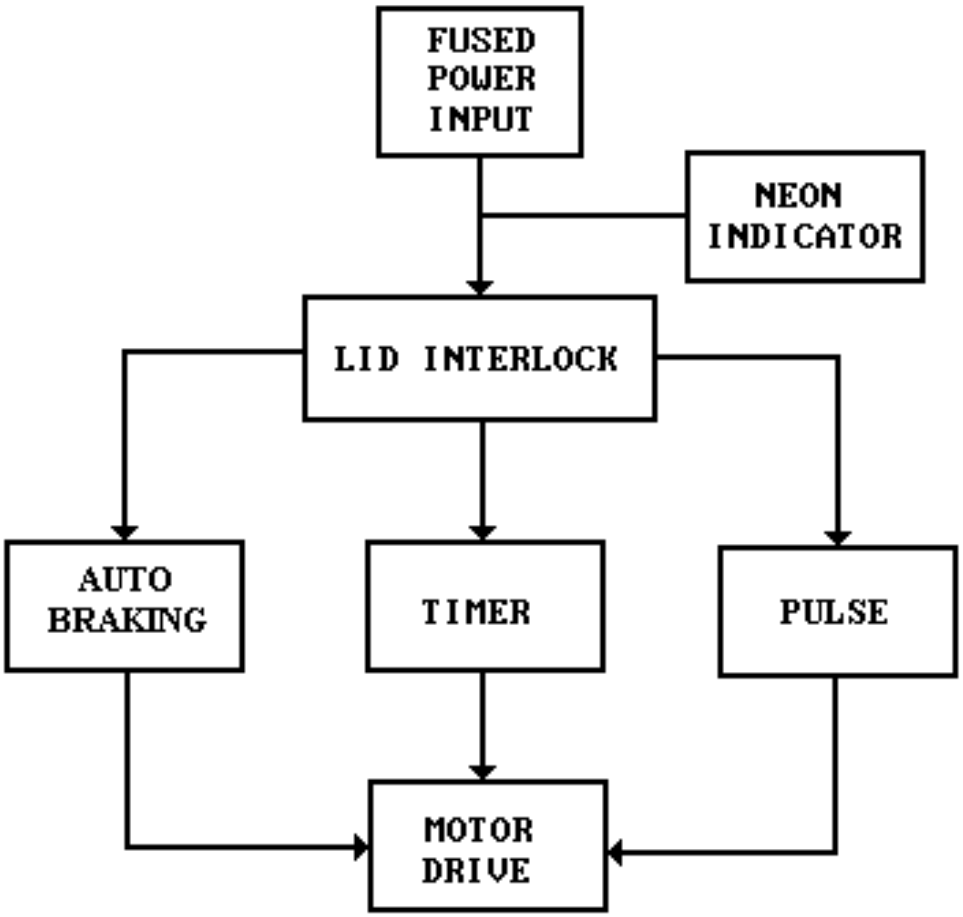


Fig 2

9. TECHNICAL DESCRIPTION (cont'd)

The device is constructed within a purpose-designed enclosure which houses the motor, PCB, timer, power indicator, fused inlet socket and ancillary components. See Fig. 2 System block diagram.

ITEM DESCRIPTIONS

MOTOR	A series wound open frame type, fitted with high-speed precision bearings and balanced armature. Windings to Class B insulation with VHF suppression filters fitted at the brush leads. Rated at 220/240 Volts AC 50 Hz.
TIMER	Independent mechanical timing mechanism, infinitely variable throughout its range with automatic run down and switch off at zero. Contacts rated 10 Amps at 240 Volts.
PULSE	A push button single pole momentary micro-switch, which overrides the timer switch.
AUTO BRAKING SYSTEM	12V DC is applied to the motor windings when timer returns to zero.
POWER	Green neon indicator illuminates when the power supply is connected.
FUSED INLET SOCKET	Moulded socket containing Live and Neutral fuses and power cord connection.

OPERATION

The blood samples are loaded within the rotor and the rotor lid is screwed down.
The centrifuge lid is closed and locked with the mechanical lever.
The lever activates an internal switch permitting power to be supplied to the timer switch.
Turn the timer knob clockwise to select the run time in minutes (0-15mins). Alternatively, press "Pulse" and hold in for short periods usually less than I minute.
Note: Centrifuge will start operating as soon as the timer knob is turned.
Note: When setting the timer remember to take into account the 30 second offset and the spin-up and stopping times of the fitted rotor.
When the timer returns to zero, the automatic braking system is applied and the rotor comes to rest. See the table of approximate spin-up and stopping (brake) times on page 10.

10. WARRANTY & SERVICE

WARRANTY

This device is guaranteed for both parts and labour for a period of 12 months from the delivery date.

The manufacturer accepts responsibility for the safety, reliability and performance of the instrument only if:

a) All maintenance, repairs and/or adjustments are carried out only by person or persons authorized to do so by the manufacturer
b) The device is used in accordance with the instructions for use as detailed in this manual.

SERVICE

With good housekeeping and regular servicing this device should give trouble-free operation for many years.

The device should be serviced every 12 months. Details are available from Hawksley & Sons **SERVICE DEPARTMENT** on Tel : +44 (0)1903 752815 Fax : +44 (0)1903 766050 or email enquiries@hawksley.co.uk.

Further technical information, including full component lists, recommended spares lists, circuit diagrams, etc, may be made available on request from Hawksley & Sons **SERVICE DEPARTMENT**.

Hawksley & Sons Ltd will not accept any liability for non-conformance to the current recommendations for use of this product which may lead to injury or other loss.

11. TROUBLE SHOOTING GUIDE

In the event of any fault condition, switch off and disconnect the centrifuge from the power supply, before attempting to investigate or dismantle the centrifuge.

POWER

Should the power indicator fail to illuminate when the centrifuge is connected to power source,

check:
a) Fuses in mains input socket
b) Power cord and plug
c) Indicator light

MOTOR

Should the motor fail to start when the lid is closed and time run is selected,

Check:
a) Lid interlock switch
b) Timer switch
c) Motor brushes

AUTOMATIC BRAKING

Should the braking time from full speed (with a 24 place rotor) exceed approximately 25 seconds,

Check:
(a) Lid was not opened before end of brake cycle.

For further information please contact our **SERVICE DEPARTMENT** or **an authorised distributor** for advice and repairs.

12. CUSTOMER/USER INFORMATION

IVD medical equipment
This device is In-Vitro Diagnostic Medical Equipment.

RECOGNISED PARTS & ACCESSORIES

We strongly recommend the use of parts and accessories supplied by the manufacturer.
The use of other manufacturer parts and accessories would not be compatible with this device and could degrade minimum safety.

DISPOSAL OF DEVICES/ACCESSORIES

Devices and accessories should be disposed of with due consideration to the environment and all local government regulations and laws surrounding the disposal of medical and electrical equipment.
If any doubt regarding disposal advice should be sought from the local government offices or the environment agency.

USE OF SAMPLE TUBES

Sample tubes affected**: Li-Heparin 500 or similar designed tubes.**

Li-Heparin 500 sample tubes or similar **must not be used** in slots between 1 and 2, 5 and 6, 9 and 10 and 13 and 14 of the multi combi rotor-01985-00. This type of sample tube can be used in any of the other 12 slots of this rotor and in any of the 16 slots of the combi rotor 01986-00. Failure to observe this instruction will result in the bottom of the sample tube being deformed due to the high centrifugal forces generated by this device when used at high speed together with the fact that the 'neck' of this type of sample tube is not supported in the four slots as detailed above. This type of sample tube can be used in any of the slots of the multi combi rotor if **SLOW SPEED** is selected. If the user has any doubt as to the suitability of the sample tubes to be used they are advised to check with the distributor or manufacturer before use.

13. DECLARATION OF CONFORMITY

We declare that the following IVD device:

NAME: **Haematospin 1400**

MODEL NO. **01400-00**

Conforms to the following directives:

98/79/EEC	**In-Vitro Diagnostic Medical Device Directive**
73/23/EEC	**Low Voltage Directive (03/01/1997)**
89/336/EEC	**EMC Directive**
2002/96/EC	**Waste Electrical and Electronic Equipment (WEEE)**

and the following standards:

ISO9001:2008	**Quality**
EN55014:1993	**Limits and Methods of Measurement of Radio Disturbance**
EN50419:2005	**Marking of Electrical and Electronic Equipment in accordance with directive 2002/96/EC (WEEE)**

SIGNED: _____

Quality Assurance Manager
Hawksley & Sons Ltd

DATE OF ISSUE: 13/09/10