



User Manual



WOODLEY
EQUIPMENT COMPANY LTD.

A blue horizontal line with a right-pointing arrowhead at its end.

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1. INTRODUCTION



This manual provides important safety information for the Clinispin Vet Combi Centrifuge. It should be kept near the centrifuge for quick and easy reference. This centrifuge is equipped with a maintenance free, brushless DC motor drive with microprocessor controlled that can speed up to 13,400 RPM and a safety feature of imbalance detection.

2. INTENDED USE

The Clinispin Vet Combi is designed to separate, sediment, and spin down aqueous solutions and solvent suspensions of differing densities in compatible sample containers.

NOTE: Before using the centrifuge, please read this user manual carefully. This user manual is intended to assist with the operation and care of the unit, and is not a document which aids in repair. For repairs, please contact Woodley Equipment Company.

3. SYMBOLS

 Warning	 Waste electrical
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4. FEATURES

- Maximum volume of 8 x 2ml and 8 x 70mm capillary tubes
- Imbalance detector with auto cutoff for safe operation
- Brushless DC motor for maintenance free performance
- Large LCD display with speed and time indicator
- Speed setting from 500 – 13,400 RPM
- One press changeover from RPM to RCF functionality
- Digital countdown timer
- Reduction adapters for 0.1/0.2 and 0.5ml tubes
- Emergency lid release during power failure
- Automatic internal diagnosis and error display
- Silent operation





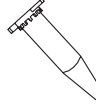

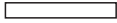
5. STANDARD ACCESSORIES

- Power supply and power cord
- T-Allen key and rotor removing tool
- User manual
- Warranty card

6. TECHNICAL SPECIFICATIONS

Motor Type	Brushless DC Motor
Rotor Capacity	8 x 2ml tubes / 8 x 70mm capillary tubes
Speed Setting	Variable 500 – 13,400 RPM 17,040 xg (Max. RCF)
Speed Accuracy	±100 RPM
Speed Steps	10 RPM
Run Time	1 – 999 mins and infinite mode
Acceleration Time	70 seconds (±5 sec)
Deceleration Time	110 seconds (±5 sec)
Noise Level	≤60 dB
Permissible Temperature	+45°C
Permissible Relative Humidity	≤80%
Dimensions	381 (W) x 480 (D) x 185 (H) mm
Centrifuge Weight	12kg (without rotor)
Rotor Weight	1.1kg (with load)
Altitude	Use up to an altitude of 2000m above MSL (mean sea level)
Pollution Degree	2
Environment	For indoor use only
Power Adapter Details	Input: 100-240 VAC, 50/60 Hz Output: 26V  8A
Power Consumption	143W

(*RCF will vary as per the adapter – list mentioned below) \varnothing = diameter

Capacity in ml	0.1 – 0.2	0.5	1.5 – 2.0	0.5 capillary
$\varnothing \times L$ in mm	6.3 x 24	8.3 x 24	-	2.3 x 77.5
Adapters	0.1 – 0.2ml adapter	0.5ml adapter	-	-
Carrier			-	
				
Bore $\varnothing \times L$ in mm	6 x 18	8 x 30	11 x 38	0.5 x 75
Tubes per Rotor	8	8	8	8
Max. RCF	6770g	8358g	9877g	14,273g
Radius in mm	42.0	51.8	61.24	88.5
Acceleration	120 seconds	120 seconds	120 seconds	120 seconds
Deceleration	80 seconds	80 seconds	80 seconds	80 seconds

NOTE: Only use accessories recommended by Woodley Equipment Company.

7. SAFETY PRECAUTIONS



Read all safety and usage information provided in this manual carefully before using the centrifuge.

- Do not use the centrifuge in any manner not specified in this manual.
- Using the centrifuge in any manner not specified in this manual or by Woodley Equipment Company will void the warranty.
- Do not move the centrifuge while the rotor is spinning.
- The rotor and the rotor lid must always be securely fastened. If the centrifuge makes an abnormal noise during operation, the rotor or rotor lid fit needs to be checked. Turn the centrifuge off immediately by pressing 'STOP', check the rotor fit and make sure it is fastened properly.
- The rotors must be loaded symmetrically. Each tube should be counter balanced by another tube of the same weight.
- Do not use centrifuges or rotors that have not been correctly installed or have been damaged.
- Do not place potential hazardous material within the clearance area.
- Repairs must only be performed by Woodley authorised personnel.
- Using incorrect rotors and spare parts will void the warranty.

- The centrifuge must be used for the specified applications only. It must not be operated in a hazardous or flammable environment, and it must not be used to centrifuge explosive or highly reactive substances.
- If liquids spill/leak into the rotor or rotor chamber, the centrifuge must be cleaned carefully and properly before being used again.
- Prior to centrifugation, the tubes should be visually inspected for material damage. Damaged tubes should not be centrifuged. Broken tubes can cause sample loss and create imbalance which can result in damage to the centrifuge and accessories.
- The maximum capacity of tubes must not exceed its corresponding rotor capacity. Do not use liquids with density higher than 1.2 g/ml for full load operation.
- Do not lean on the equipment. It may damage the equipment or harm the operator.
- When moving the centrifuge from a cold environment to a room temperature environment, run the centrifuge for 30 minutes beforehand in the cold environment to avoid condensation.
- Make sure the tube lids are closed tightly prior to centrifugation. Unsecured tube lids can be torn off during centrifugation and can damage the rotor lid or centrifuge.
- Rotors and rotor lids are high-grade components which are subject to extreme mechanical strain. Even slight scratches and tears can lead to serious internal material damage. Check the rotor for any sign of damage before use.
- Rotors and rotor lids showing visible signs of corrosion or mechanical damage should not be used. Contact Woodley Equipment Company for replacement rotors and parts.
- Do not fill the tubes while they are in the rotor. Liquid spillage may harm the centrifuge.
- In the event of contamination caused by aggressive agents, the rotor must be cleaned immediately using a natural cleaning liquid (e.g. water). This is particularly important for the bores of the tubes. If there are signs of damage, contact Woodley Equipment Company.
- Before using cleaning or decontamination methods, other than those recommended by Woodley Equipment Company, contact Woodley

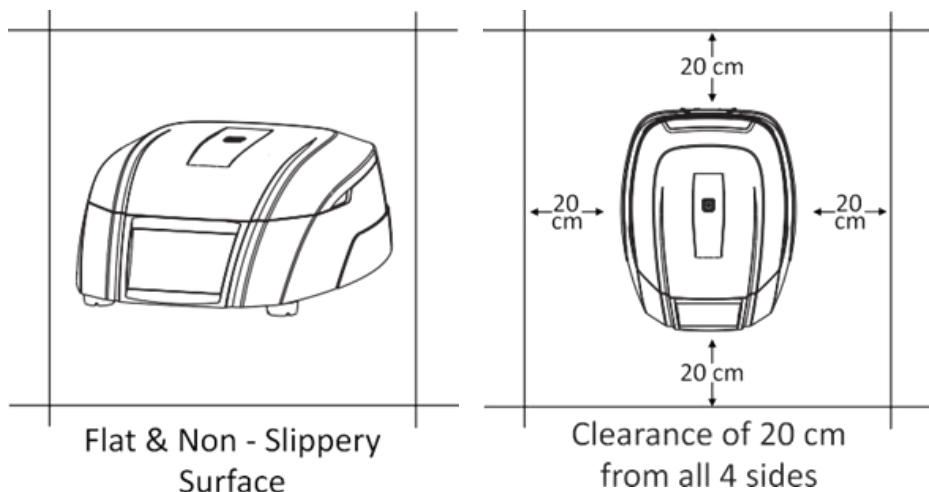
Equipment Company to ensure that the intended method will not damage the centrifuge.

- The power adaptor supplied with the centrifuge unit is designed to be used for that particular centrifuge. Do not use any other power adaptor. Using another power adaptor may damage the centrifuge and will void the warranty.
- For safety, protective earthing is provided with the power supply. Make sure the power supply is earthed.

8. INSTALLATION

The Clinispin Vet Combi comes in a packaging box. Upon receiving the box, gently remove the upper packaging and take out the centrifuge by holding it from the bottom. When the centrifuge is used for the first time, ensure that all of the packaging accessories are removed from the rotor chamber. The rotor is pre-installed. Please make sure the rotor is firmly tightened. Accessories and the user manual are inside the box with the centrifuge. Please keep all packaging in safe storage for at least 2 years for warranty purposes.

The following points are necessary for proper installation.



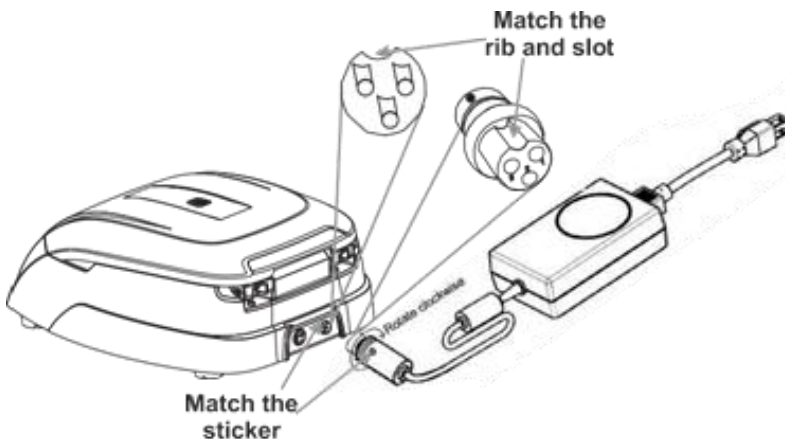
8.1 LOCATION AND MOUNTING

Place the centrifuge on a flat, level surface. Ensure that all four feet of the centrifuge stand firmly on the surface. Avoid installing on a slippery surface or a surface prone to vibration.

- Ideal ambient temperature is $+20^{\circ}\text{C} \pm 5^{\circ}\text{C}$. Avoid placing the centrifuge in direct sunlight.
- Keep clearance of at least 20cm on all sides of the centrifuge.
- Keep away from heat and water to avoid sample temperature issues or centrifuge failures.
- Do not place the centrifuge somewhere that would make it difficult to disconnect the device.
- Use the removing tool to remove the rotor.

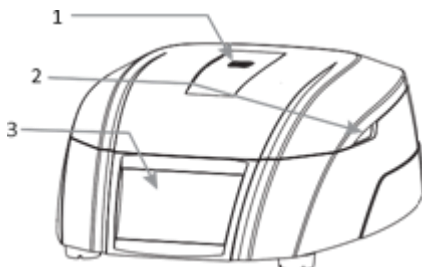
8.2 CONNECTING THE POWER ADAPTOR

- Connect one side of the power adaptor to the rear of the centrifuge and the other to the power supply as shown in the figure below.
- Rotate the adapter nut clockwise to tighten the adapter with the centrifuge. Ensure the power switch is OFF while connecting the power adapter.
- The stickers on the body and jack indicate the position of the rib on the jack. While fitting the adapter to the unit, match the sticker position as shown in the figure below and gently push it in.

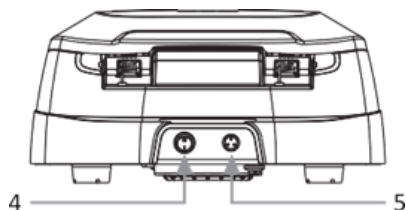


- If matched correctly, the plug will go in easily without much force (do not try to force the plug in if it is not matched properly). Once the plug is inserted into position, turn the loose upper ring clockwise to tighten and secure the fitment.

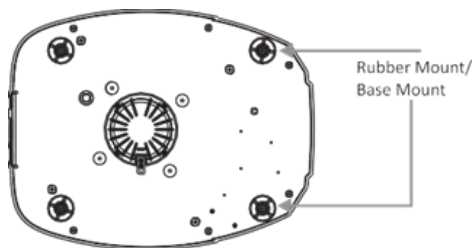
9. STANDARD PARTS LISTING



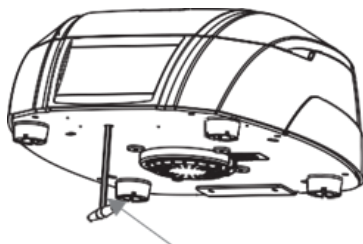
1. View window
2. Groove to open the lid
3. Operation and setting buttons



4. Power switch
5. Adapter port

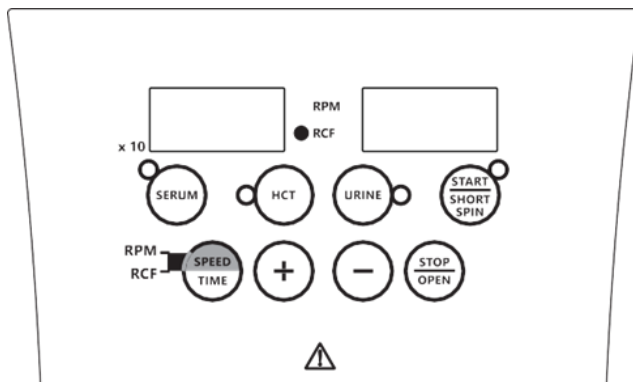


Bottom View



**Emergency lid release
during power failure**

10. USER INTERFACE AND DISPLAY



- Start/Short Spin: Starting and short spinning
- Stop/Lid Open: Stop operation and lid opening
- Speed/Time: Spinning speed changing/run time
- Serum: 2 minutes at 12,000 RPM
- HCT: 5 minutes at 12,000 RPM
- Urine: 1 minute at 1,000 RPM

11. ROTOR INSTALLATION

11.1 REMOVING AND REPLACING THE ROTOR

Upon receiving the centrifuge, its rotor comes pre-installed. If the rotor needs to be removed or replaced, follow the procedure below.

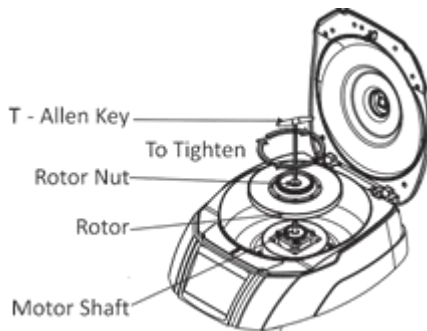
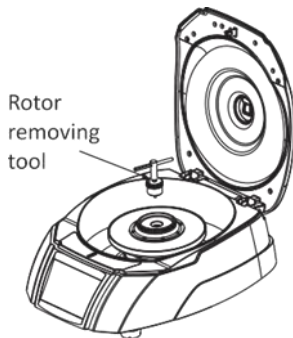
11.1.1 REPLACING THE ROTOR

- To replace or install the rotor, take the rotor and load it vertically on the motor shaft.
- Place the rotor nut in the centre hole of the rotor onto the motor shaft.
- Put the T-Allen Key in the rotor nut and turn clockwise to tighten, and anticlockwise to loosen the rotor.

NOTE: Check the rotor is firmly tightened before running.

11.1.2 REMOVING THE ROTOR

- Do not try to remove or loosen the rotor with bare hands.
- Using the rotor removing tool, loosen the rotor nut by turning it anticlockwise.



1. Unscrew and remove the rotor lid and rotor nut using the Allen key on the end of the removal tool.
2. Get the rotor removal tool and turn the handle anticlockwise so that the centre pin goes further inside.
3. Screw the removal tool onto the rotor.



4. Once the removal tool is securely screwed onto the rotor, begin to turn the removal tool handle clockwise while holding the rotor at the same time so that the rotor does not move while turning the handle.

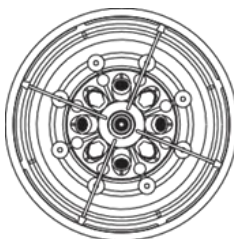


5. While turning the removal tool handle clockwise, the rotor should start to lift away from the motor shaft. Once the rotor is free from the motor shaft, the rotor can now be removed by pulling rotor upwards by the removal tool handle.



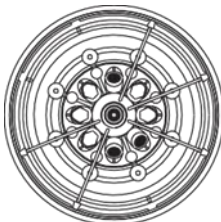
12. BALANCING THE ROTOR

- Always balance the rotor before beginning operation. The following section explains the process of symmetrical loading of centrifuge tubes in the rotor.



- The above figure is the method to load tubes symmetrically in the rotor. The samples in the tubes should be of equal volume.
- Symmetrical loading of tubes in the rotor is necessary. Otherwise, vibration or imbalance can occur which can cause serious damage to the centrifuge.

- If the tubes are not loaded symmetrically, the imbalance detection will cut off the running centrifuge for device and user safety. This will stop the centrifuge and Err 55 will be seen indicating tubes are not loaded symmetrically. To resume operation, load the tubes symmetrically and restart the centrifuge.
- The figure below shows the incorrect method of loading tubes in the centrifuge rotor.



NOTE: Incorrect loading of tubes can lead to damage/injury.

NOTE: When HCT (PCV) tubes are loaded, the rotor lid must be screwed into position, otherwise damage will ensue.

13. OPERATING THE CENTRIFUGE

13.1 SWITCH THE CENTRIFUGE ON

After connecting the power adapter, switch the main power supply ON and switch ON the power switch on the rear of the centrifuge. Check the rotor fitment before use. The centrifuge will not operate when the lid is open.

NOTE: Maintain a gap of 3 seconds between switching the centrifuge OFF and ON. Do not switch OFF and ON again immediately.

13.2 START/SHORT SPIN

- Press the 'Start' button and operation will start as per the given input value. The status LED will flash while the device is in spinning condition. After stopping, the motor status LED will stop flashing.
- A count up and countdown timer will start after the speed reaches the set speed.
- The 'Short Spin' button indicates the short spinning operation.
- Set the value of RPM/RCF. Then, press and hold the 'Short Spin' button. Operation will start with the set value.

- During short spin operation, the countdown timer will disable. It will display the count up time value in seconds (up to 59 seconds) then minutes (1 – 99 minutes).

NOTE: When HCT (PCV) tubes are loaded, the rotor lid must be screwed into position, otherwise damage will ensue.

13.3 STOP/LID OPEN

- This will stop the spinning of the motor and the status LED will stop flashing after the rotor stops.
- This button is also used to open the lid.
- Pressing the button will open the lid when the centrifuge is not running. Pressing the button to open the lid is disabled when the centrifuge is running.
- When you press the stop button, the lid should open after the motor has stopped spinning.
- If the lid is open, the centrifuge will not start spinning. It will show the error 'LID OPEN'.
- While ramp up and ramp down, all keys will be disabled except 'STOP' and 'RPM/RCF'.

13.4 SPEED/TIME

- The value of RPM/RCF can be changed by pressing the 'Speed/Time' button. The speed value and time value are changed using the same button. The speed displays as two digits (x10 for conversion).
- Example: The RPM will display as 100 RPM (x10 for conversion) = 1000 RPM. The RCF will display as 100 RCF (x10 for conversion) = 1000 RCF.
- To set the RPM/RCF value, press the 'Speed/Time' button until the speed value starts flashing. To choose the desired value of speed in accordance with RPM/RCF, press the '+' or '-' buttons to increase or decrease the value from 500 – 13,400 RPM and MIN to MAX RCF in ranges from 10 RPM/RCF increments.
- To quickly increase or decrease the speed, press and hold '+' or '-'. After setting the desired value, release the button, the display will start flashing and the value will be saved.
- Speed change will disable in ramp up and ramp down time.

- During continuous mode, the speed value can be changed using the above steps.
- The time value can be changed by pressing the 'Speed/Time' button. To set the time value, press the 'Speed/Time' button until the time value starts flashing. To choose the desired value, press the '+' or '-' buttons to increase or decrease the value from 1 – 999 minutes and infinite mode by 1 minute increments.
- To quickly increase or decrease the time, press and hold '+' or '-'. After setting the desired value, release the button, the display will start flashing and the value will be saved.
- The timer will start after reaching the set RPM. It should not reset even if the time is changed.
- Example: If the timer is set for 5 minutes and the time is changed after 2 minutes, the minimum set time will be 3 minutes because it has already run 2 minutes.

13.5 RPM/RCF

- The value of RPM/RCF can be changed by pressing and holding the 'Speed/Time' button.
- Press and hold the 'Speed/Time' button to change the display set of RPM/RCF.

13.6 STANDARD PROGRAMMED BUTTON (SERUM, HCT AND URINE)

- The Standard Program function is used to save multiple programmes.
- If stored, the saved standard program can be used for direct operation.
- Serum: 2 minutes at 12,000 RPM
- If the 'Serum' button is lit up, you can start the operation.
- HCT: 5 minutes 12,000 RPM
- If the 'HCT' button is lit up, you can start the operation.
- Urine: 1 minute at 1,000 RPM
- If the 'Urine' button is lit up, you can start the operation.

13.7 IMBALANCE DETECTION

The centrifuge is equipped with an imbalance detection safety feature. When the rotor is not loaded symmetrically, the imbalance detection activates and will cut off the centrifugation. 'Err 55' will be shown on the display. Correct the

imbalance load using the method described in Section 12. After correcting the imbalance, switch the centrifuge OFF then switch it ON. The values will be the same as the ones set before the imbalance. The imbalance detection feature cannot be deactivated.

14. MAINTENANCE AND CLEANING

- The rotor and the outside of the centrifuge should be cleaned regularly with a soft, damp (with water) cloth.
- Ensure that the unit is not plugged in before cleaning.
- Wear protective gloves and safety glasses while operating and cleaning the device.
- The brushless motor in the centrifuge requires no routine maintenance. Maintenance should only be performed by Woodley authorised personnel.
- Repairs performed by unauthorised personnel may void the warranty.
- Always keep the centrifuge housing, rotor chamber and rotor clean. All parts should be wiped down periodically with a soft cloth. For more thorough cleaning, use a neutral cleaning agent (pH between 6 and 8) and clean with a soft cloth.
- Excessive amounts of liquid should be avoided.

NOTE: Liquid should not come into contact with the motor.

15. TROUBLESHOOTING

If a problem occurs, an error code will be displayed on the display screen. The operator can use the table below to resolve the error.

Error/Error Code	Problem	Solution
No display	No main power connection	Check power and check whether the power adapter is properly plugged in at both ends.
	Power failure	Check the main fuse of the lab.
	Improper connection	Connect the adapter properly.
Err 1	Lid is not closed	Turn the centrifuge off and then on. Use the emergency lid through the Allen Key on the clockwise rotation (instructions on page 12).
Err 55	Rotor not loaded symmetrically	Load the rotor symmetrically and restart the centrifuge.
Err 52	Rotor is stuck	Turn the centrifuge off. Check and fit the rotor properly. Turn the centrifuge on.

Lid open	If the lid is closed and the display shows 'Lid Open', the rotor will not operate	Turn the centrifuge off and then on. Press the 'Lid Open' button 2-3 times.
Intt	Display shows 'Intt'	During operation, if the power (electricity) fails, the centrifuge will not work (none of the buttons and automatic lid opening) until the rotor has stopped.

NOTE:

- If the centrifuge is working slow or is hot, restart the centrifuge and check it again.
- Do not use liquids with density higher than 1.2 g/ml for full load operation.

16. WARRANTY

This product is warranted to be free from defects in material and workmanship for a period of two (2) years from the date of purchase. Your product will be duly repaired upon prompt notifications in compliance with the following conditions.

This warranty is only valid if the product is used for its intended purpose and within the guidelines specified in this user manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other cause not arising from defects in original material or workmanship. This warranty does not cover any incidental or consequential damages, commercial loss or any other damages from the use of this product.

The warranty is invalidated by any non-factory modification which will immediately terminate all liabilities on Woodley Equipment Company for the products or damages caused by its use. The customer shall be responsible for the product or use of products, as well as any supervision required for safety. If requested, the product must be returned to the manufacturer. It must be well packed, insured and all shipping charges must be paid.

NOTE: Some states do not allow limitation on the length of implied warranties or the exclusion of limitation or consequential damages. This warranty gives you specific legal rights. This warranty is given expressly in lieu of all other warranties, expressed or implied.

The purchaser agrees that there is no warranty of merchantability or of fitness for any intended purpose, and that there are no other remedies or warranties, express or implied, which extend beyond the description on the face of the agreement. This warranty is only applicable to the original purchaser. Products received without proper authorisation will not be processed for warranty or service. All items returned for service should be sent with postage prepaid in the original packaging or other suitable packaging, padded to avoid damage. Woodley Equipment Company will not be responsible for damage incurred by improper packaging.

For your reference, make a note of the serial number and date of purchase here.	
Serial No.:	Purchase Date:

17. PRODUCT DISPOSAL

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community

The disposal of electrical devices is regulated within the European Community by national regulations based on EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). According to these regulations, any devices supplied after 13.06.05 in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste. They are marked with the following symbol to indicate this.



As disposal regulations within the EU may vary from country to country, please contact Woodley Equipment Company if necessary.



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