

Table Tennis Robot **AMICUS PROFESSIONAL**



Important: Please read instructions carefully before using the equipment.

The chapter Control Panel (Quick Reference Guide) outlines the basic functions for operating the Table Tennis Robot

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From novice to professional, from defender to attacker, ... ideal for every type of player and every level of play

Congratulations, you are now the owner of a Butterfly table tennis robot.

The manufacturer offers a full 2 year guarantee as well as a 5 year service plan covering repairs and replacement parts, effective from the date of purchase. Please ensure you keep your receipt!

Special features:

1. Unique global innovation:
Ball delivery with state of the art three-wheel technology
2. The wheels are manufactured using rigid sponge with a special coating for better durability

3. Compact, solid, functional construction (only approx. 6 kg)
4. A large all-round collection net
5. Well designed and user-friendly control panel.
6. Variable ball placement, adjustable to desired spin, speed and trajectory
7. Programmed and random delivery of balls with different spin, speed, direction and trajectory
8. Automatic correction of length of ball delivery
9. Memory and IFC (Individual Frequency Control) functions
10. Remote control
11. All functions adjustable via the

Control Panel from the player's side of the table

12. Adjustable height of ball delivery

Please note:

13. Please read this instruction manual carefully before using the robot!
14. The Table Tennis Robot may only be connected to a 100-230V power supply!
15. The projection wheels rotate at high speed, therefore avoid touching the wheels while the machine is running as this can cause injury!
16. The Table Tennis Robot, AMICUS Professional, should only be used in enclosed and dry rooms!

Instruction manual

1. Assembly

The following components are included with the robot and must either be assembled or connected to it prior to its use.

- a) Base unit with collection net
- b) 24V DC power adapter
- c) Control unit
- d) Extension cable
- e) Control unit holder
- f) Wireless remote control

Other components: Allen keys, projection wheels, tube for wheel adjustment, spare rubber for the collection net, Velcro strips for securing the collection net.

1. Place the base unit on the table in an upright position (with the connections facing you). (Fig. 1). Attach the base unit to the table with the aid of the preassembled holder (see photograph). Open out the net supporting frame into Position 1; (Fig. 2) and rotate the head by loosening the lar

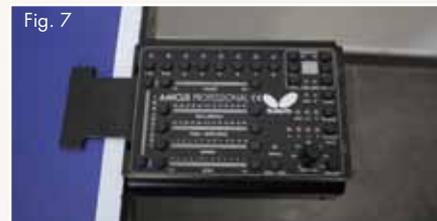
ge screw on the base unit, turning it 180 degrees in the opposite direction.

2. Standing behind the machine, fold down the net supporting frame completely by gripping the top part of the frame on each side and pulling the sides apart until

fully extended (Fig. 3) Attach the plastic corner pieces to the corners of the table (Fig. 4)

3. Then pull the ends of the ball collection net between the table tennis net posts and its supports, and secure the rubber bands to the clamp screws (Fig. 5).

4. Connect the extension cable and the adapter to the appropriate connections found on the side of the base unit (Fig. 6). The cable on the opposite side of the table is then connected to the control unit which you should then mount onto the player's side of the table. (Fig. 7)



2. Control Panel (Quick Reference Guide)

Trajectory: Setting the level of Ball trajectory
Ball selection buttons 1-8: Setting new balls (first push), selecting a ball to change its settings (short push), switching balls off (long push) or deleting it (pushing together buttons 1 and 8)

Ball placement button: To select landing spot: left → left side of the table; right → right side of the table

Memory place button ← →: To select one of 100 possible memory places

Saving and deleting exercises: Saving and deleting programmed exercises

Access and exit memory space: starting different operations within the memory function

Buttons Ball/min % (IFC): For individual adjustment of time intervals between balls

Side-Spin: Sidespin regulation (-90 → Sidespin left; 0 → no Sidespin; 90 → Sidespin right)

Speed: Speed regulation (1 → slow; 25 → fast)

Spin: Spin regulation (-5 → extreme backspin; 0 → no spin; 7 → extreme topspin)

Start/Stop: To start up or stop the robot

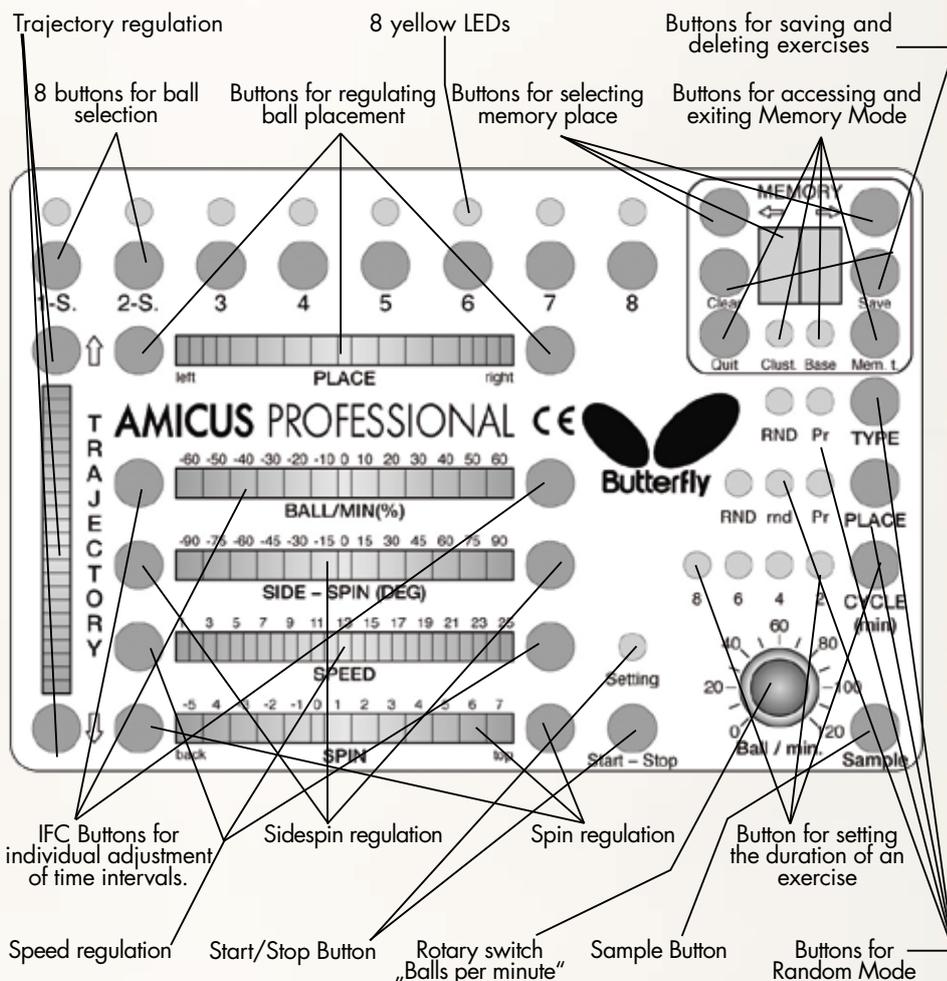
Ball/min: Regulation of the ball frequency (balls/min)

Sample: With the aid of the Sample Button, individual balls and exercises can be simulated

Cycle: Defines how long an exercise runs → Pauses play automatically after 2, 4, 6 or 8 minutes

Random mode PLACE: Adopts the spin, speed and trajectory settings of balls 1-8 but randomly varies the placement of each ball

Random mode TYPE: Plays balls 1-8 in a random sequence



3. Operation

Switching on the Robot

Fill the „ball container“ with a sufficient quantity of balls (at least 50-60 balls) and then turn the Ball/min rotary switch to the „0“ position before turning on the power.

After turning on the power, the robot will carry out a brief self-test (lasting approximately 5 seconds) and the control unit will then automatically switch to the basic setting. By turning the „Ball/min“ rotary switch to a higher position the projection motors will start to work and the robot will start releasing the balls.

Attention: In case there wasn't enough balls in the robot, then it fills up itself, which takes approx. 10 seconds, and it throws the first ball only after this procedure.

The features of the thrown balls (ball types)

When setting the balls it is necessary to set

the type and the place of the balls which are defined by the following parameters:

Ball type: SPIN, SIDESPIN, SPEED, TRAJECTORY

Ball placing: Right-left placing



Adjusting the height of the projection head

As with all the AMICUS robots, the height of the robot head can be adjusted as follows: Loosen the hand screw on the back of the tube which holds the projection head (Fig. 8). The tube can be moved up and down as required. Finally, adjust to the desired height, ensuring that the top of the outer tube lines up with one of the markings on the inner tube (Fig. 9) and then tighten the hand screw.

Please note: Adjust the silver marks found on the internal tube to the top margin of the external tube in order to enable the robot to release the balls surely, without omission.

Executing different types of balls

The AMICUS PROFESSIONAL robot is suitable to throw different types of balls one after

the other to different places – and even with different frequency!

This means that not only the placement, but also any other parameters of each newly defined ball can be changed with help of the buttons "Trajectory", "Ball/min. %", "Side-spin", "Speed" and "Spin".

Tip: As explained later, a once defined ball can simply be copied by moving forward to the next ball!

Attention: An already set ball can be made actual pushing shortly its designator button!

Ball Placement

Attention: It is possible to set the parameters of that ball (actual ball) which ones yellow light is flashing.

Ball delivery to a specific point on the table
After turning on the robot, the control unit will automatically switch to the basic setting. The robot is now ready to deliver the balls to a specific point on the table. The parameters of each ball can be adjusted with the aid of the Trajectory, Place, Side-Spin and Speed buttons. By pressing the "Sample" button, a single ball will be delivered in order to simulate the ball you have just programmed.

Programmed ball delivery to various points on the table

With the aid of buttons 1-8, several balls (max. 8) can be selected. The different parameters can be selected by using the appropriate buttons. The flashing yellow LEDs indicate which ball will be delivered next. After the end of each "round" the ball delivery will commence again from the beginning.

Attention: Activating the next ball, the robot will use the same parameters set for the previous ball. Therefore it is recommendable to precisely set the first ball, in case the main parameters shall remain more or less the same for the following balls!

PLACE "rnd" Mode

To use the "rnd" mode, press the "Place" button. The robot will then randomly distribute the balls you have selected within a 20 cm radius circle of the set points, simulating a real match situation (selecting just one ball can already be enough to make this function work).

PLACE "RND" Mode

By pressing the "Place" button again, the "RND" mode will be activated. The selected balls will now be released to the set places randomly. Again, a flashing LED will indicate which ball will be released next (minimum

2 balls need to be designated to make this function work).

Combining „rnd“ and „RND“

The "rnd" and "RND" modes can be combined by pressing the "Place" button for a third time. In this case the balls will be delivered randomly within a 20 cm radius of the selected set points.

Pushing the "Place" button a fourth time will return you to the original position (Pr) in which you can programme the balls.

TYPE RND Mode

The "TYPE RND" mode can be activated by pressing the "TYPE" button. The ball will now be delivered at random, whilst adopting the spin, speed and trajectory settings of balls 1-8.

In case both the PLACE RND and the TYPE RND buttons are switched on, the robot chooses totally randomly from the set places and ball type parameters.

IFC Mode

The new "IFC" (Individual Frequency Control) mode can be selected if there are different types of balls selected within an exercise. When the IFC mode is activated, you can adjust the time intervals between individual balls which are delivered with varied spin.

Correction of set balls

In case it turns out during play that the parameters of one or the other ball are not perfect, the rally may be stopped with help of the "ball/min" or "start/stop" buttons. Then such balls can be modified.

It is advisable to push the designator button of the subject ball – even during play – because then the robot stops immediately and this ball will become actual. After successful modification, the play can be re-started by pushing again the "start/stop" button (use the "sample" button while setting the ball!)

Note: Doing such restart of the exercise, the robot starts the play always with the first ball of the exercise!

The AMICUS PROFESSIONAL allows to set any balls of the exercise even during the play (one push means one step)

- The trajectory of each ball
- The speed of each ball
- The Ball/min rotary switch changes the general frequency
- In case there are balls with all the same spin, then using the spin can be changed for all in the same time

Exercises with Serve

The first and second ball button can be used in two different ways:

- (1) Pushing it once (yellow LED light) for setting a regular ball
- (S) Pushing twice quickly (green LED light) for setting a service

- If you activate the first green LED and then set a service, the robot executes a 1-1,5 sec break before starting the rally.
- If you activate the second green LED, it plays the here set service only once in the beginning of the exercise and the does not execute it before you stop the exercise.
- Activating both green LEDs, the robot switches between both services and always makes a short break in front of the according rally.
- Switching on the TYPE RND function in this case, the robot will mix the balls as usual in this random function, but keeps in mind to execute a break before the service.

Tip: In case of setting slow services it is advisable to use the "Ball/min %" function in minus direction, in order for the next ball not to arrive too quickly with the players still executing the service.

Memory

Saving exercises in the memory

Turn the "Ball/min" rotary switch to the "0" position and press the "Mem.t." button. The "Base" LED will light up and memory location "01" will appear on the display. By using buttons (→) and (←) it is possible to select a memory location. If a memory location is not yet in use, that number will flash. By pressing the "Save" button the exercise will be saved. If you wish to delete an exercise, simply select the appropriate exercise to be deleted and press the "Clear" button.

Please note: All the set parameters can be saved in the memory, except the random and the cycle functions. These features can be activated during the play without any limit.

Modifying and playing a saved exercise from the memory

Press the "Mem.t." button to access the exercises in the memory, and then select an exercise which the robot will adopt and subsequently commence ball delivery with the "start" button. The exercise taken out from the memory can be modified as it is described at the Ball Placement.

Attention: The modified exercise needs to be saved (on the same memory place or another one), otherwise the former settings will remain active.

Simply exit the memory area by pushing the "Quit" button for longer time.

Cluster memory

The AMICUS PROFESSIONAL is the only robot worldwide that allows saving a range of (max. 32) different rallies and play those automatically with short break one after the other or in a random way like a match.

Filling up the Cluster memory

Practically the Cluster makes possible the regrouping of the rallies saved in the Basic memory. Therefore if you change such a program saved in the Basic memory which you've put in the Cluster, then there will be change also in the Cluster

1. Enter the Base memory with pushing once the "Mem.t." button (the "Base" lamp lights, and there is "00" on the display)
2. With help of the step (→,←) buttons you have to choose that program from the Base memory which you want to "copy" into the Cluster.
3. Pushing second time the "Mem.t." button you get into the Cluster memory (the "Clust." LED starts lighting and the C0 sign appears on the display.). C0 is the first out of ten (C0 – C9) Cluster memories.
4. With buttons →,← you have to choose in which Cluster you want to put the rallies.
5. Pushing third time the "Mem.t." button, both memory LED-s light up. That shows you want to make an operation between the two memories. With the steps you can choose the cluster place where you want to save the base program chosen in the 2. point. Now you can save with button "Save", and the flashing of the cell will become continuous. (In order that the cells of the cluster to be distinguished from the ones of the cells of the Base memory. (The cluster cells are signed with number-dot-number-dot, for example: the 23. cell is signed with 2.3.).
6. You can return to the Base memory with pushing again the "Mem.t." button and the procedure is repeated from point 2.
7. In case you wish to check the content of a cluster, then simply start the play when both memory LEDs light up. The flashing LED indicates the ball in play. You can then see on the display the cluster which is executed, while the control panel shows the program set.

Tip: If you have chosen the desired Cluster as it is described above (point 4) and then

push the "save" button, then the robot saves the rally at the first empty space. Filling it up can be continued with pushing the "Mem.t." button as described in point 1.

Play from CLUSTER memory

You can enter the Cluster memory with pushing two times the "Mem.t." button (the Clust. LED lights, and "C0" appears on the display). Browse through the Clusters, choose one and then press "Play". (Clust. LED starts to flash, the played cluster cell can be seen on the display, and the program appears on the control panel.)

The robot executes the rallies in the saved order, one after the other (it leaves out those cells - if there exist such - where it is no program). The robot plays the rallies continuously, so this way you can create very long rallies containing different type balls.

Switching on the Type RND function, the robot plays in random order the rallies saved in cluster. Always start with the first rally.

Tip: If you put exercises with service into the Cluster memory, then the robot executes a two-second break before those, in order to simulate a real match situation.

Editing the Cluster memory (This is possible only in Stop function!)

Playing the Cluster on the control panel can be seen the set values of the just played rally, and on the display its Cluster number (For example: 0.5.).

If this time you stop the rally, everything stays like it has been before. If now you step with the "Mem.t." button in the Base memory, then the display shows the number of that base memory cell from where the rally has been saved in the Cluster (For Example: 17). The changes described in the Base memory can be made in this cell, and the changed rally can be the resaved to the same place.

Then return to the Cluster memory with pushing the "Mem.t." button, and start to play.

Attention: It will be change now on all those Cluster memory places where this Base program has been applied. In this example, referring to the number 17.

Deleting the Cluster memory

Deleting the whole Cluster:

With pushing two times the "Mem.t." button, the Clust. LED lights and the C0 cluster number appears on the display. You can choose

the cluster that you want to delete and you can delete all the cells of the cluster at the same time with pushing the "Clear" button for long.

Deleting rallies from the Cluster:

You have to step in the Cluster memory. Then you can choose that group (C0...C9) where you want to delete the rallies. You go into the cluster with the "Mem.t." button (both red LED-s light) and you chose the rally that you want to delete. In this case it is possible with the Start/stop button in order to be sure that you delete the correct one. Then this rally can be deleted with pushing the "Clear" button for long.

You can get out from the Cluster memory with pushing the "Quit" button for long.

Please note: In case of deleting from the cluster there will be no change in the Base memory.

Calibration

To calibrate the AMICUS, press both Trajectory buttons at the same time. The robot should now deliver a ball without any spin towards the middle of the table.

Should this not be the case, then make the necessary adjustments by using the Control Panel. To end the calibration process, press the START/STOP button.

Remote Switch

The small wireless remote switch has 4 functions in total.

The red "start/stop" button has two functions:

1. If the "Ball/min" rotary switch is set to "0", then the rally set on the control panel can be played, executing one ball each time the red button is pushed.
2. If the "Ball/min" rotary switch is not positioned to "0", then it works same as the "Start/stop" button.
3. The round grey "Sample" button works like the sample button on the control panel, with the difference that pushing it once – in middle tempo – starts to throw the actual ball, pushing it again stops to throw (in the meantime the thrown ball can be adjusted).
4. Using the smaller grey buttons (+ and –) the ball frequency can be adjusted same as using the "ball/min" button on the control panel

Please note: The remote switch has a reach of 4-5 meters, therefore please do not stand too far away from table when using it.

Teaching the remote switch

The remote switch is adjusted to the robot that it originally belongs to. Therefore, if you buy a further switch or need a new one, it needs to be "activated" before being able to use it in the following way:

After switching on the robot, push together for longer time the ← → buttons to make the "L_" appear on the display. Now you have to push any of the buttons of the remote switch once that the display changes to "L-". After a few seconds the robot automatically steps out from learning function and returns to the basic position.

You can adopt a maximum of 4 remote switches to your robot in total.

Please note: The remote switch works with small 12V, 27 A type batteries, which need to be replaced in case to run out of power at any time.

Switching off the AMICUS PROFESSIONAL

Pull the adapter from current when leaving the robot. Do not let it switched on without control.

If the robot is taken temporarily from the table, then put the adapter, the control box and then extension cord into the ball holder part, fold the net in the middle stage and build down the robot from the table.

The robot like this can be put aside that

easily and quickly be re-assembled at next practise.

Transport

If the robot is transported to another place, also the net keeping poles have to be turned until the point of second collision (Fig. 6c).

Turn the hanging poles and the head in the direction of the robot and turn the net keeping poles in totally upper position.

Transport the robot in such position.

Do not forget to pack the adapter, the control box and the extension cord as well.

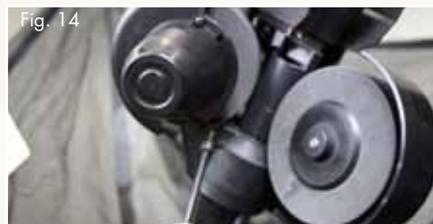
4. Maintenance and Repair

Important: Always unplug from the mains before carrying out any maintenance or repairs!

Please ensure that whilst operating the robot, small objects such as hair and broken balls etc. do not find their way into the ball collection net and subsequently into the machine, because this can lead to ball jams.

– The ball projection wheels are very durable and will last for at least 500 hours. Nevertheless, these wheels will finally wear off after intense use. One sign for a worn wheel is that the machine releases the balls at irregular lengths at high speed. This means that the surface of the wheels does not have enough grip on the balls. For that reason, the distance of the wheels has to be adjusted.

– To adjust the distance between the projection wheels, first remove the adjustable plastic tube from its holder which can be found between the projection wheels (Fig. 10.). First loosen the black adjusting screw



next to the protective cover of the lower motor (Fig. 11.) with the bigger Allen key provided with the accessories. Push the motor up towards the adjustable tube, gripping its cover, until the wheels touch the tube. (Fig. 12.) Repeat this for the two upper motors.

Please note: The correct distance between the wheels should be 36-37 mm.

– If the distance can no longer be adjusted, the ball projection wheels have to be replaced. Therefore loosen the screws (Fig. 13.) located in the wheel mounts using the smaller Allen key provided among the accessories; this applies to all three wheels. Now remove the adjusting screws on the two upper motors (it is not sufficient just to loosen them) (Fig. 14.) Then rotate the two upper motors away from the projection hole. Grip the outer casing to enable the removal of the projection wheels from the axis of the motor. (Fig. 15.)

The plastic disc can now be removed from the motor shaft. (Fig. 16.a, b.) Remove

the plastic disc from the projection wheel (which is held together by three screws) and replace it with a new one.

Slide the new wheel onto the end of the axis and tighten the screw. Then adjust the correct distance of the wheels with the help of the adjustable tube as described above.

– Should a ball jam occur, the machine will try to remove the jam automatically by turning the motor and the projection wheels backwards and forwards (7-8 times). If, for any reason, the feeding motor and both projection motors jam at the same time, the machine will stop to prevent any damage to the motors. In this case, all six yellow lights will start to flash on the control unit. You will have no alternative but to remove the head from the machine together with any damaged balls located in the bottom section of the robot with the aid of a pencil or screwdriver, etc. (Fig. 17)



5. Error Management

Problem	Solution
The robot does not function once assembled	a) No power supply? b) Blown fuse → replace the fuse in the control unit c) Check whether the cable plugs on the bottom of the control unit have been plugged in correctly.
	When the small green control light found on the adapter is not lit, despite being connected to the mains, this means that the adapter is damaged and has to be replaced.
	Is Rotary Switch V for ball frequency set to „0“? → Turn it up.
Length of ball delivery is irregular	a) Check distance between the projection wheels, are the wheels worn? (page 5) b) Incorrect assembly: Are the tubes and the robot head securely in place? c) The pin for regulating the length “is stuck” → lubricate it with some silicone.
The balls are suddenly being delivered irregularly and with varying length	a) Restart b) A damaged ball or other foreign body is obstructing the transport of balls to the projection wheels → remove (page 5) and switch on the robot again.
Ball jam; the yellow light is flashing on the control panel	A damaged ball or foreign body is obstructing the transport of balls to the projection wheels → remove.
The Random Mode on the control panel cannot be activated; green indicator light does not light up.	At least two balls must be activated and at least two yellow indicator lights must glow. (page 3)
Balls are stuck between the ball projection wheels, the control unit switches itself off.	Pull out the adapter from the mains, remove all balls from between the projection wheels, set the Ball/min button to the “0” position, then resume play.

Attention:

If you are not able to resolve the problems with the help of this checklist, a specialist must be consulted! Please contact your specialist supplier or the Butterfly service centre (address is located on the side). Always contact a competent specialist

if the power cable is defective or if the fuse blows again immediately after being replaced. Failure to do so will invalidate your claim for a refund during the two year guarantee period.



6. List of Replacement Parts

List of Replacement Parts

mobil-100	Base unit with collection net	mobil -105	Extension cable	mobil -111	Tube for projection wheel
mobil -101	Robot head	mobil -106	Projection motor	mobil -112	Ball placement mechanism
Professional 102	Control unit	mobil -107	Feeding motor	mobil -113	Motor casing (3 part)
mobil -103	Holder for control unit	mobil -108	Oscillating head motor		
mobil -104	DC adapter (24V, 2.5A)	mobil -109	Motor for height adjustment		Further replacement parts upon request!
		mobil -110	Projection wheel		

7. Technical Data

Mains Power Supply: 100-230V, 50-60 Hz transformer, approximately 40 W

The robot should only be operated indoors within a temperature range of 0-40°C.

Weight: 6 kg (with net)

Overall dimensions (with net): Height 0.75m; Width 0.28 m; Depth 0.25 m

The electrical adapter device was subject to a test for the approval of electrical ap

pliances and was found to conform to the standard outlined below:

Conformity with the Low Voltage directive 73/23/EEC

As last amended by EEC Directive

93/68/EEC

Registration No.: AN 50091861 0001

Report No.: 17004848 001

As is evident from Test Report

Nos. NTEK-2010NT1115351E and NTEK-2010NT1115353SS

As a result of these test reports the robot AMICUS Professional is permitted to bear the CE trademark.

Made in Hungary, designed by Csaba Lukács
Further product information and the product video are available on

butterfly.tt/amicus



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