

# Dual Primus Maximus

Direct Drive Turntable

## Owner's Manual



## Introduction

This Owner's Manual will help you, to install and use the Primus Maximus correctly and safe.

All persons, who **install, operate, clean and/or dispose** this turntable, should read this manual carefully before using the turntable.

Please keep this manual stored for later reference or other users.

Please pay special attention to all safety relevant chapters.

These are clearly marked with this sign:



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## Safety

Please read this safety information carefully and do only act according these instructions.



- The turntable and parts of this turntable, like the platter, are very heavy. Please check, if you can lift the heavy weight of this unit by yourself. Otherwise ask for assistance of another person.
- Do only use the correct power supply unit.
- Do only connect the power supply to the correct mains voltage, which is stated on the power supply unit.
- Take care, that all supply cables do not have any damage, to avoid fire hazards and electric shock.
- Do not expose the turntable or power supply to moisture or water.
- Remove the mains plug from the socket if you do not intend to use the unit for a longer period.
- If there is a malfunction or smoke coming from the unit, disconnect mains immediately.
- The packing material is no toy. Never allow children to play with this material. There is a high risk to suffocate, when playing with plastic bags.

## Unpacking

The turntable is delivered in a special designed box, to ensure a safe transport of the turntable. Inside, there are some layers of damping foam, to cover all the part safely. The following pictures show the unpacking step by step.



We strongly recommend storing the packing box, including the inside packing material for future transport of the turntable.

After all parts are removed from the packing box, please check the delivery content carefully.

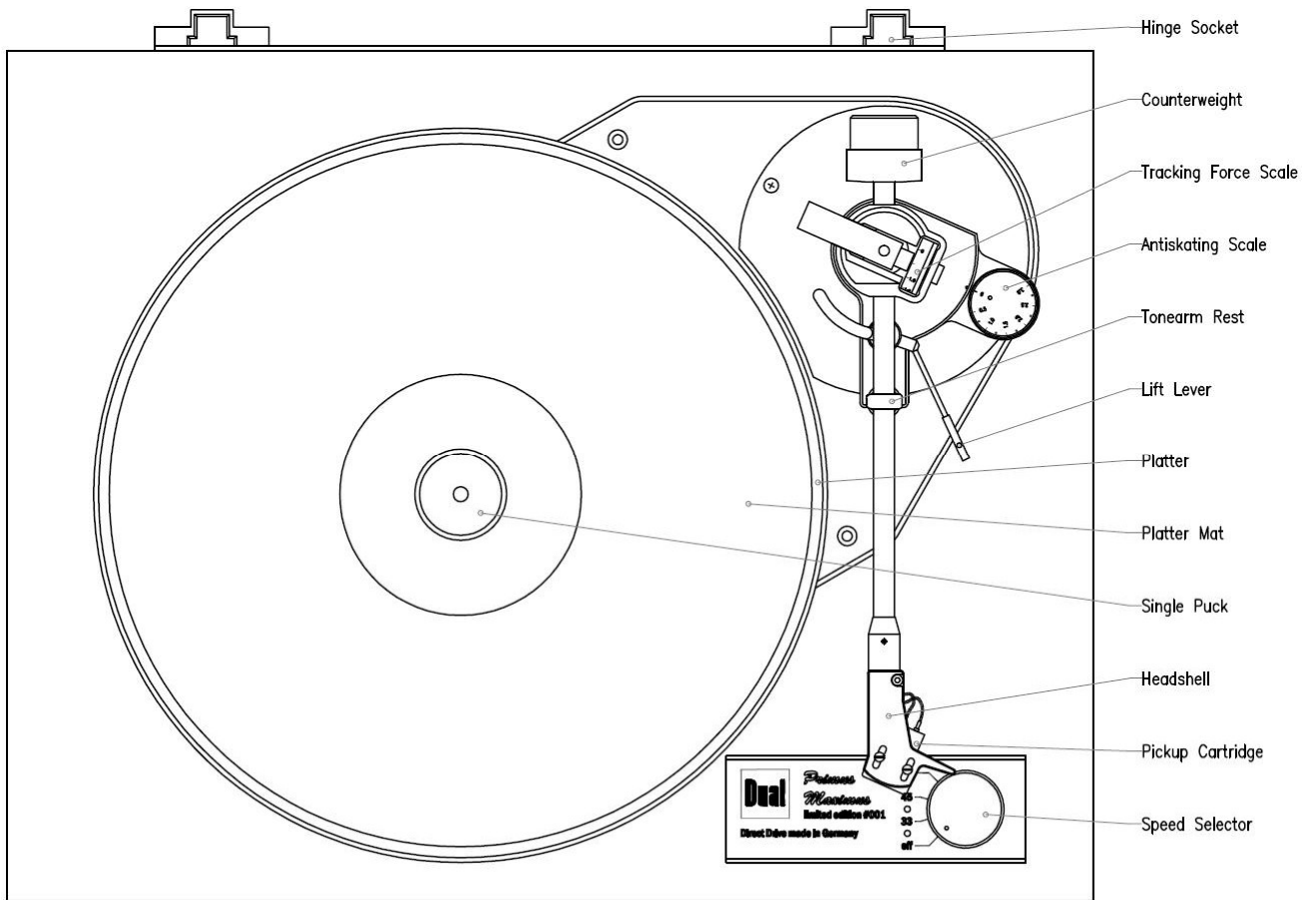
## Delivery Content



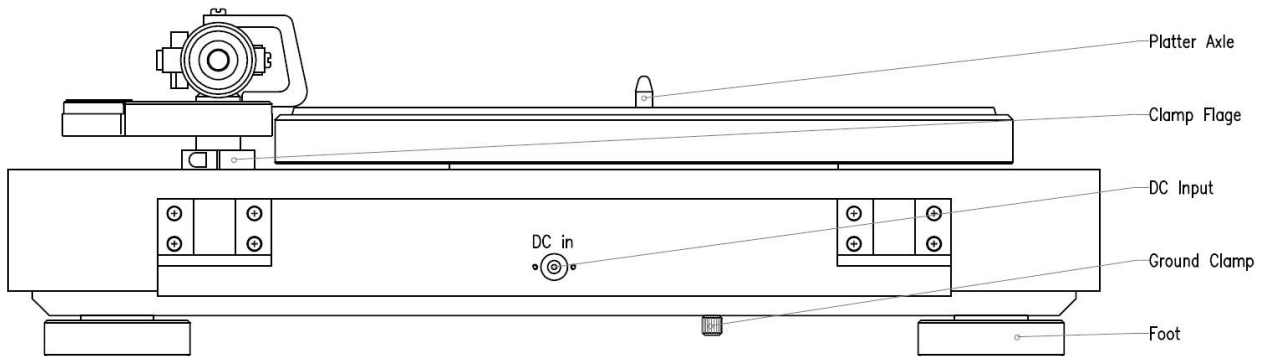
- A Turntable, including tonearm and pickup cartridge
- B Dust cover
- C Platter
- D Platter mat
- E Hinge (2x)
- F Counterweight
- G Power supply
- H Mains cable
- I Phono cable
- J Single puck
- K 3x Allen key: 2,5mm, 2mm, 1.3mm
- L Mini Screwdriver

## Turntable Overview

View on top side of the turntable



View on back side of the turntable



## Setup

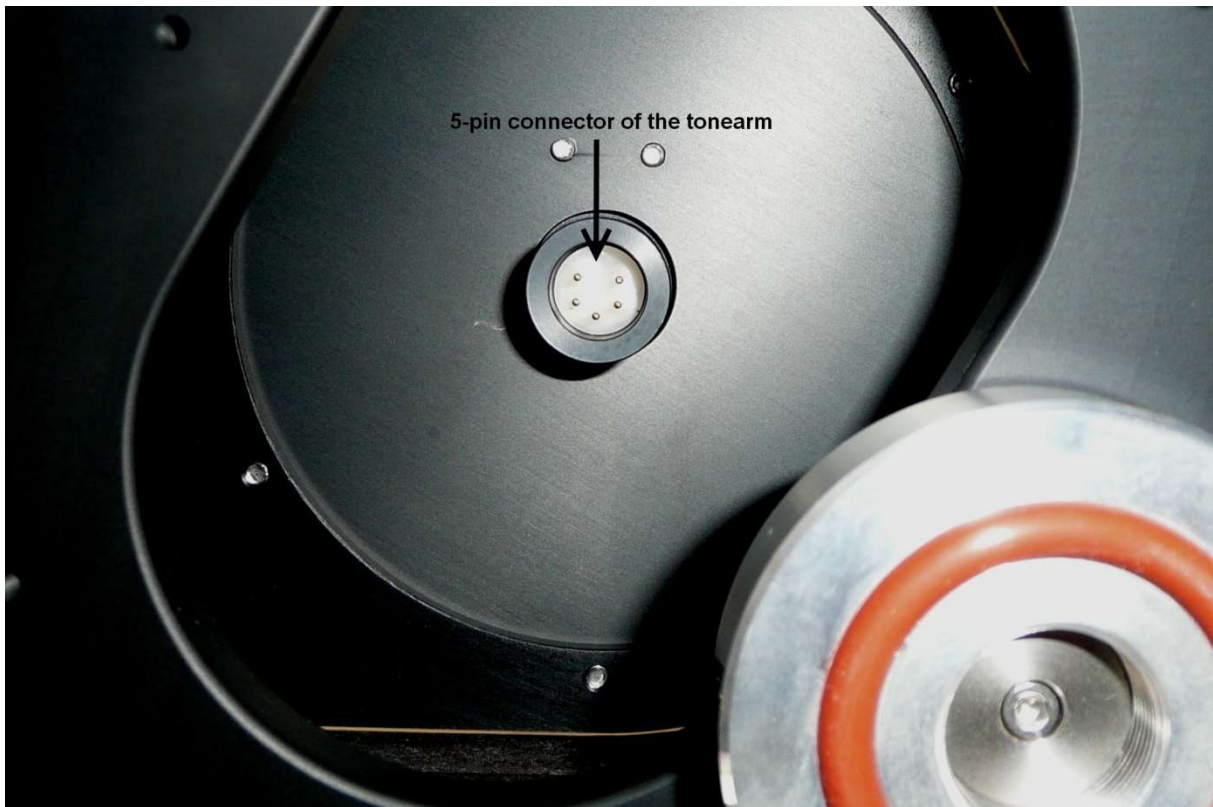
### *Placement of the Turntable*

Select a location, where you would like to place your turntable. Take care that the construction below the turntable is solid enough to carry the heavy weight of the turntable. Do not place the turntable close to loudspeakers, to avoid acoustic coupling. There should be also no direct sun to the turntable. This can cause damage or bleaching of the wooden surface.

For correct horizontal placement, the turntable is equipped with 4 adjustable feet. You can check placement with a spirit level. The feet have a micro thread. It can be leveled by turning the foot.

### *Connection of Phono Cable*

The phono cable (item 1 in the delivery content) must be connected to the tonearm. Below the tonearm, there is a big hole in the bottom plate of the turntable. Through this hole, you can see the 5 pin connector of the tonearm, refer picture below:



Lift up the turntable, to insert the 5-pin connector of the phono cable into the tonearm connector. Place the turntable back at your table or rack.

The other end of the phono cable has standard RCA plugs for the left and right stereo channel and an additional grounding wire. The RCA plugs must be connected to your Amplifier at the "Phono" input. The grounding wire must be connected to the ground clamp at the phono section of your amplifier. The turntable is equipped with a low output MC-Cartridge. Please ensure that your phono section supports low output MC-Cartridges.



### *Installation of Platter and Mat*

Now you can place the platter (item **C** in the delivery content) carefully to the motor sub platter. It is centered by the motor axle. The platter sits with its own weight on the motor platter and does not need any fixture. Be careful, when you handle the heavy platter and do not drop it.

The platter mat (item **D** in the delivery content) can now be placed on top of the platter.

### *Installation of Counterweight*

The counterweight (item **F** in the delivery content) must be installed at the backside rod of the tonearm. By turning it, the position of the weight moves back and forth. Please refer picture below:



### *Installation of Hinges and Dust Cover*

There are 2 hinge sockets at the rear side of the turntable (refer schematic of the top view in the overview section). Here you can insert the 2 hinges (item **E** in the delivery content). Now you can place the dust cover. It has 2 fixture slots at the rear side, which fit to the hinges.

### *Connection of Power Supply*

Important: Please do only use the correct power supply unit (item **G** in the delivery content)!

The power supply has its own housing and can be placed separately. The DC jack of the power supply must be connected to the DC input at the backside of the turntable. Refer to the schematic of the back view in the overview section.

Now you can connect the mains cable (item **H** in the delivery content) to the power supply. The mains connector of the cable can now be inserted to a mains socket in your room.

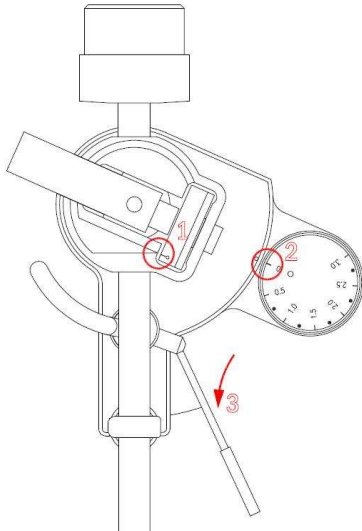
## Adjustment

### Balancing the Tonearm



During this procedure it is very important that the stylus of the cartridge does not hit any part. Otherwise it can be easily damaged or broken!

Please follow this procedure for balancing the tonearm step by step:



**Step 1:**

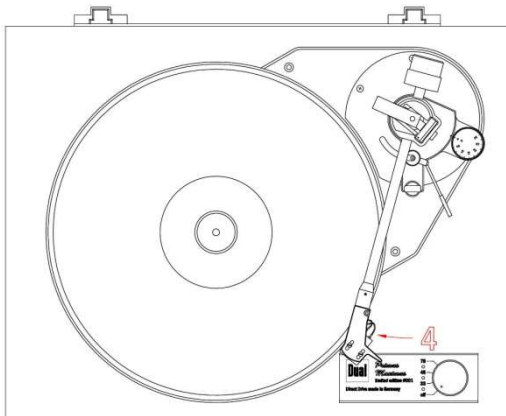
Set tracking force scale to "0".

**Step 2:**

Set antiskating scale to "0".

**Step 3:**

Move lift lever to "lift down" position.

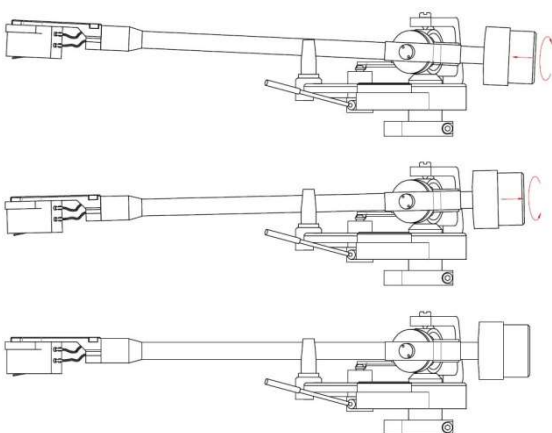


**Step 4:**

Move the tonearm carefully from the tonearm rest to a position between tonearm rest and platter.

**Attention:**

To avoid any damage of the pickup stylus, use one hand, to hold the headshell in position.



**Step 5:**

The counterweight can be rotated on its axle. Depending on the turning direction, it moves forward or backward (refer upper and middle schematic on the left). So you can find the position, where the tonearm is freely levitating in the horizontal position (like in the lower schematic on the left).

**Attention:**

Whenever you turn at the counterweight, use one hand, to hold the headshell in position. So, you avoid uncontrolled movement. Then release the headshell carefully, to check the balancing.

Once the tonearm is correctly balanced, move it back to tonearm rest.

### Tracking Force and Antiskating Setting

Set the tracking force scale to the recommended value of the pickup cartridge. The recommended tracking force is 2.3g., for the installed Ortofon Quintet Bronze cartridge.

Antiskating setting is depending on the stylus cut of your cartridge. The values on the scale are meant for conical stylus. For conical stylus cut the antiskating scale should be set to the same value as the tracking force. For elliptical stylus the values must be increased by ~10%. And for sharp cuts, like Fine-Line, Micro-Line etc... , the value at the scale must be increased by 30%.

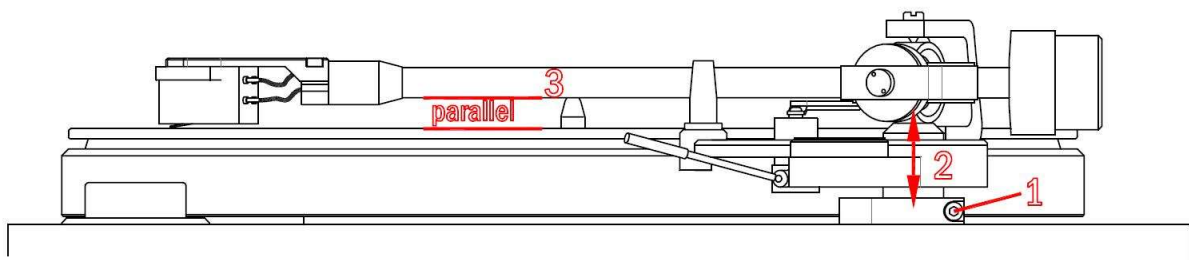
As the Ortofon Quintet Bronze cartridge has a stylus with Fine Line cut, the antiskating scale must be set to 2.3 +30%. So the correct antiskating value would be ~3.

### Tonearm Height Adjustment

The height of the tonearm can be adjusted. The correct adjustment is already done in the factory for the installed pickup cartridge Ortofon Quintet Bronze.

But if you intent to use a different cartridge, which might have a different height, you should perform this height adjustment procedure.

- 1) Use 2,5mm allen key (item **K** in the delivery content), to open the screw at the tonearm clamp. Please open the screw very careful and hold the tonearm in position. Otherwise it will drop.
- 2) Move tonearm to the correct height position.
- 3) The position is correct, when arm tube and record surface are parallel.

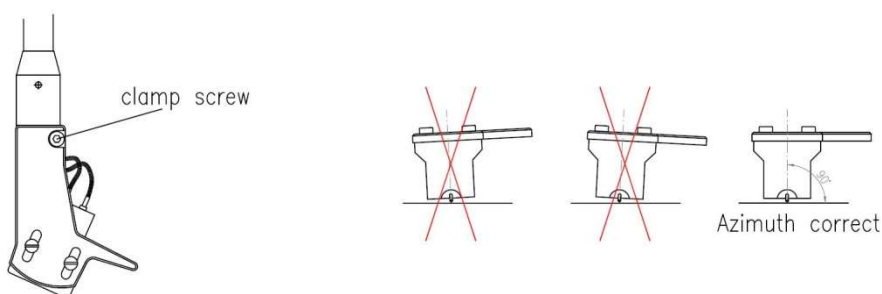


Now you can tighten the clamping screw again.

### Azimuth Adjustment

The azimuth adjustment is already done by the factory. But if you have opened the clamping screw at the headshell, you must perform the azimuth adjustment procedure again.

Open clamp screw at the headshell with an 2mm allen key (item **K** in the delivery content). Then turn the headshell until the cartridge stylus is exactly rectangular to the record surface (refer also picture below). Tighten clamp screw, to fix the headshell position.

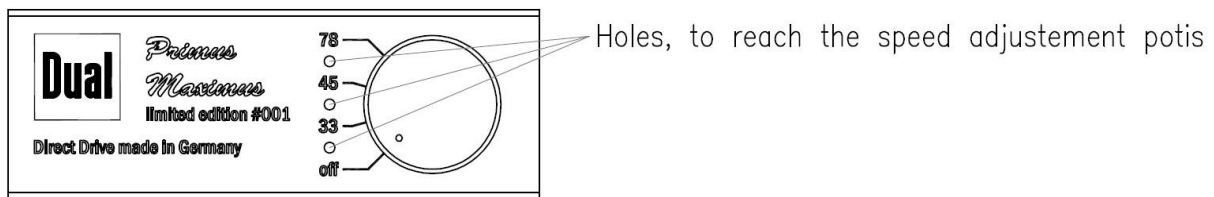


## Speed Adjustment

Speed adjustment is already done in the factory. But due to temperature change, the platter speed can drift over a longer timeframe in a small range. This drift has nothing to do with wow&flutter! The wow&flutter value stays always at the specified range.

You will need a strobe disc and a strobe light with the correct flashing frequency to perform the speed adjustment. When you use a strobe disc, which works with the mains frequency, you can normally use the light of a standard light bulb. Modern LED-lights will most probably not work.

All 3 platter speeds can be adjusted independently at the corresponding potentiometer. They are accessible through holes at the operating terminal (refer picture below). The adjustment potentiometers can be set with a small “Philips” (cross) screwdriver (item **L** in the delivery content).



## Operating the Turntable

Operating the Primus Maximus is very easy. Please refer to the overview picture on page 7, for identification of the part names. There is one rotary knob at the operating terminal. This rotary knob is speed selection and “on/off” switch in one function.

To playback a record, place the record on the platter. The center hole of the record must sit on the platter axle. If you would like to playback a 7” single, with a large center hole, you must place the single puck (item **J** in the delivery content) to the platter axle, before placing the single to the platter.

Select the correct speed (33, 45 or 78) at the speed selection knob. The correct speed is usually indicated at the record label. After speed selection with the knob, the platter will start spinning. It will reach the correct speed within some seconds.

Now move the lift lever at the tonearm to the “lift up” position. Then move the tonearm towards the record and select the exact position, where you would like to start the playback. Now move the lift lever to “lift down” position. The tonearm will slowly move downwards and the music will start playing.

To stop playback, move the lift lever to “lift up” position. Move the tonearm to the tonearm rest and turn the speed selection knob to “off” position.

## Cleaning and Maintenance

Do only use a soft cleaning cloth for cleaning. It should be dry or only a little moist. Never use any chemicals for cleaning.

The surface of the dust cover can get scratches very easily. So do not apply high pressure, when you use your cleaning cloth.

The surface of the turntable plinth is real wood. It has got a finish with an oil/wax mixture. Before using a furniture care product, please check compatibility first at a less obvious section (for example the back side).

Take special care, when you clean the tonearm section. Especially the stylus can be broken very easily. But also take care, that you do not misalign the tonearm settings.

There is almost no maintenance needed at the Primus Maximus. Only the condition of the stylus should be checked regularly. Dust and dirt can be cleaned with a stylus brush. The wear and tear of the stylus should be checked latest after ~200 hours of operation. This check can only be done by specialists with the correct microscope equipment.

The stylus of the Ortofon Qunintet Bronze cannot be changed. If the stylus is broken or worn, the cartridge can be refurbished at the Ortofon facility. Please contact your dealer for details.

## Technical data, conformity to directives and standards

<b>Außenmaße</b> Breite Tiefe Höhe (inkl. Staubschutzhaube)	<b>Outside dimensions</b> <i>Width</i> <i>Depth</i> <i>Height (incl. dust cover)</i>	450 mm 370 mm 155 mm
<b>Gesamtgewicht</b>	<b>Overall weight</b>	15 kg
<b>Netzanschluss über separates Netzteil</b> Außenmaße L x B x H Weitbereichseingang	<b>Mains input with external power supply</b> <i>Outside dimensions L x W x H</i> <i>Universal wide range input</i>	100 x 80 x 50mm 90-264VAC / 47-63Hz
<b>Leistungsaufnahme</b> Maximale Leistungsaufnahme Leistungsaufnahme im Spielbetrieb	<b>Power consumption</b> <i>Maximum power consumption</i> <i>Power consumption during playback</i>	30 W ~3 W
<b>Antrieb</b> Bürstenloser Direktantriebsmotor mit optoelektronischer Drehzahlfassung Elektronische Drehzahlregelung, mit analoger Schaltung	<b>Drive</b> <i>Brushless Direct Drive Motor with optoelectronic speed feedback</i> <i>Electronic speed control, with analog circuit type</i>	EDS104
<b>Plattenteller</b> Präzisionsgefertigt aus Aluminium Gesamtmasse mit Tellerplatte	<b>Platter</b> <i>Precision manufactured from Aluminum</i> <i>Weight incl. platter mat</i>	Ø304 mm 2,7 kg
<b>Plattenteller-Drehzahlen</b> Wählbar mit Drehschalter Justierbar mit je einem Trimmer	<b>Platter speeds</b> <i>Selectable with rotary switch</i> <i>Adjustable with poti for each speed</i>	33 1/3, 45, 78 min <sup>-1</sup>
<b>Anlaufzeit bei 33 1/3 UPM</b>	<b>Speed settling time at 33 1/3 rpm</b>	4-5 s
<b>Gleichlaufschwankungen</b> (bewertet nach DIN)	<b>Wow and flutter</b> <i>(DIN weighted)</i>	< ± 0.04%
<b>Tonarm Daten</b> - Effektive Tonarmlänge - Überhang - Kröpfungswinkel - Effektive Tonarmmasse (ohne Tonabnehmer)	<b>Tonearm Data</b> - <i>Effective tonearm length</i> - <i>Overhang</i> - <i>Offset angle</i> - <i>Effective tonearm mass (without cartridge)</i>	221mm 18.5mm 24° ~ 15g



This product conforms to the following directives and standards:

- the Low-voltage Directive (2014/35/EU),
- the EMC Directive (2014/30/EU) and
- Ecodesign Directive 2009/125/EG
- RoHS Directive 2001/65/EU

## Disposal Instructions

*This chapter is a must, to satisfy the formal. It is kind of ironic.*

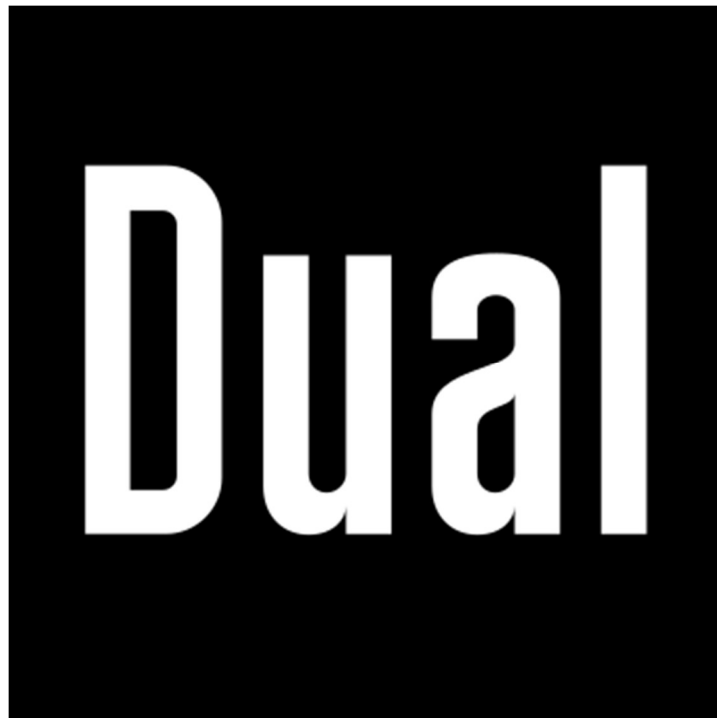
Old electronic equipment is no trash. It can be recycled.



This turntable is marked according to Directive 2012/19/EU for old electronic equipment (WEEE). This turntable must not be thrown away to the standard trash, as shown on the sign. It must be handed to a recycling collecting station. Precious resource can be separated and recycled. This saves our environment.



Please ask your dealer or local government, where you can leave this turntable for correct recycling.



**Manufacturer:**

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Servicehotline: +49-08191 / 915 777 0 · E-Mail: [support@dual.de](mailto:support@dual.de)