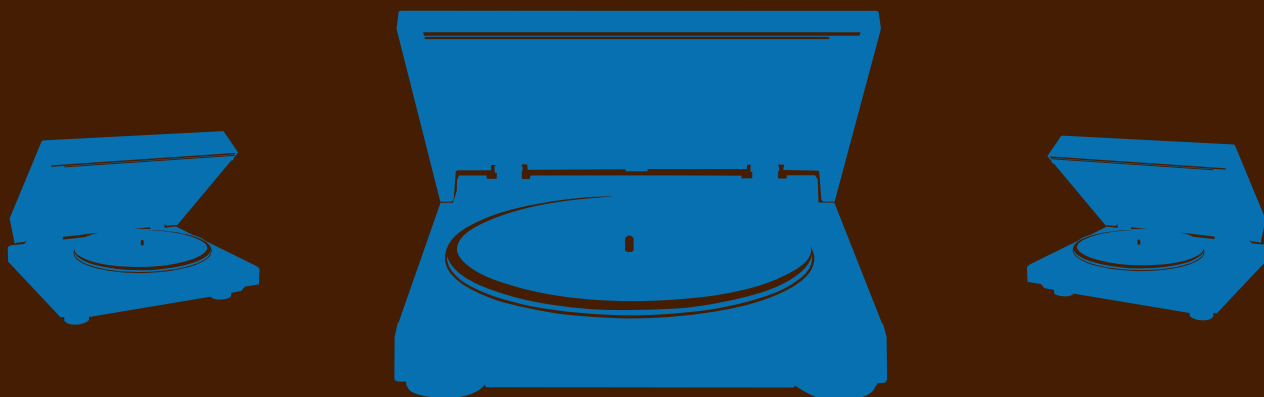


Catalogue 2008

analogue turntables 2008



Dual

Premium quality,

long service-life and customer-friendly service. Even today, DUAL turntables are sold successfully with high production figures- a success route, which is going to be even stronger during the course of retro trends in the coming years.



Dual

analogue turntables



Our company's history began with the production of spring drives in the year 1900. 27 years later the combination motor made of electric and spring drive technology was introduced- the so-called **"DUAL motor"**. **In this way, the brand DUAL was born.** At the world exhibition in Paris in 1937, DUAL gramophone received its first award. In 1949, the DUAL turntable, Model 1000, was introduced. DUAL is now producing 200,000 drives yearly. In 1952, it started its first own crystal systems and by 1955/56 the portable set and portable amplifier followed. New developments like tape recorders, tuner, amplifier, loudspeaker and compact units were equally successful. In 1971, DUAL took over the rival company PE. While in the 70s DUAL incurred their largest/big-

gest profits, the surprising turn came about with bankruptcy in 1982 and the take-over by THOMPSON. In 1988, DUAL was resold further to Schneider-Rundfunkwerke AG, which expanded the product-line to televisions. From 1993 to 1995, Alfred Fehrenbacher GmbH took over the production of complete turntables programs of DUAL.

In 2006 the distribution and marketing rights of DUAL turntables have gone over to the newly founded "DUAL-Phono GmbH" by Alfred Fehrenbacher- **production and distribution are now once again in one hand.** Sintron GmbH now holds the exclusive distribution rights for Germany and other countries worldwide.



CS 505-4

Semi- automatic turntable

Safe and easy to operate: Semi- automatic turntable with speed control.

The legend carries on...

Sub chassis-development with semi- automatic

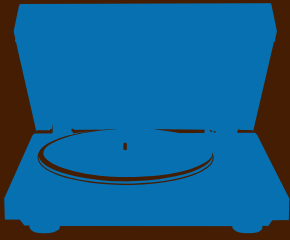
Tone arm technology:

Cardan bearing with zero-mass tracking force setting by a high- precision torsion spring. Removable headshell with 1/2 inch fixing holes. Adjustable tracking force and anti-skating. Headshell made of carbon fiber for special rigid torsion.

Chassis technology

Solid wooden console. Floating sub-chassis. Vibration-damped aluminum turntables with anti- static felt mat.





Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed control. Viscosity-damped tone arm lift. Automatic tone-arm cueing mechanism. Auto stop with tone arm return. Possibilities to play-back archived discs with a speed of 78 Upm. Delivered with magnetic pick-up OMB 10.



■ made ■ in ■ Germany



Sub chassis/Floating chassis

The sub chassis as a carrier of tone arm and of turntables is fitted in the main console of the device by a suspension. This mechanically complex decoupling absorbs vibrations like sub-sonic noise and ensures a disturbance-free listening pleasure.

Cardanic tone arm bearing

Low frictional force in tone arm bearings takes care of an uninterrupted run of tone arm and thereby ensures a pleasant listening experience. Cardan bearing from DUAL is used in micro-bearing technology. In every movement two tempered and buffed steel points rest in the centre of five precision ball bearings. A tone arm is suspended at these four ball bearing steel points.



CS 455-1 M

Fully automatic record-player

Premium quality record player with floating sub- chassis for uninterrupted listening experience

A class of luxury...

Exclusive solid wooden frame as a basis for a splendid technology, sub-chassis -turner with fully automatic mechanism

Tone arm technology:

Cardan bearing with zero-mass tracking force setting by a high-precision torsion spring. Removable headshell with 1/2 inch fixing holes. Adjustable tracking force and anti-skating. Headshell made of carbon fiber for special rigid torsion.

Chassis technology

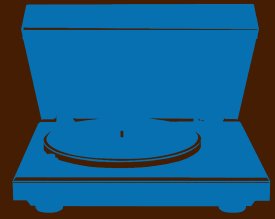
Solid wooden console. Floating sub-chassis. Vibration-damped aluminum turntables with anti- static felt mat

Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed control. Viscosity-damped tone arm lift. Automatic tone-arm cueing mechanism. Auto stop with tone arm return. Possibilities to play-back archived discs with a rotational speed of 78 Upm. Delivered with magnetic pick-up OMB 10.



■ made ■ in ■ Germany



CS 455-1 M Walnut gold



CS 455-1 M Texture finish/paint (black)-silver

The M-series of DUAL CS 455-1 record player offers highest quality of listening experience together with technically perfect workmanship. For high-end requirements with solid wooden console in extravagant/luxurious fittings.



CS 455-1 M piano lacquer (black) silver finish

CS 455-1 M piano lacquer (black) gold finish



Sub chassis/Floating chassis

The sub chassis as a carrier of tone arm and of turntables is fitted in the main console of the device by a suspension. This mechanically complex decoupling absorbs vibrations like subsonic noise and ensures a disturbance-free listening pleasure.

Cardanic tone arm bearing

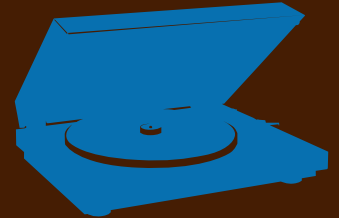
Low frictional force in tone arm bearings takes care of an uninterrupted run of tone arm and thereby ensures a pleasant listening experience. Cardan bearing from DUAL is used in micro-bearing technology. In every movement two tempered and buffed steel points rest in the centre of five precision ball bearings. A tone arm is suspended at these four ball bearing steel points.



CS 455-1

Fully automatic turntable

Premium quality record player with floating sub- chassis for uninterrupted sound experience.



Black performance...

German engineering skills paired with distinct design.

Tone arm technology:

Cardan bearing with zero-mass tracking force setting by a high- precision torsion spring. Removable headshell with 1/2 inch fixing holes. Adjustable tracking force and anti-skating. Headshell made of carbon fiber for special rigid torsion.

Chassis technology

Solid wooden console. Floating sub-chassis. Vibration-damped aluminum turntables with anti- static felt mat.

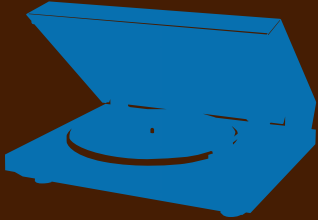


■ made ■ in ■ Germany

Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed control. Viscosity-damped tone arm lift. Automatic tone-arm cueing mechanism. Auto stop with tone arm return. Possibilities to play-back archived discs with a rotational speed of 78 Upm. Delivered with magnetic pick-up OMB 10.





CS 435-1

Semi automatic turntable

A favorable combination: precise technology and full comfort at attractive price.

A perfect symbiosis ...

of well-defined technology, affordable, fully automatic system,
comfort with adjustable counter weight and anti-skating.



Tone arm technology:

Tone arm with balanced weight. Adjustable counter weight and anti skating. Headshell with 1/2- inch fixing holes. Rigid torsion tone arm head.

Chassis technology

Solid wooden console. Floating sub-chassis. Vibration-damped aluminum turntables with anti- static felt mat.

■ made ■ in ■ Germany

Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed control. Viscosity-damped tone arm lift. Automatic tone-arm cueing mechanism. Auto stop with tone arm return. Delivered with magnetic pick-up DMS 251 S.





CS 420

Fully automatic turntable
with MIDI-format.



High performance MIDI...

Easy to use, turner with fully automatic mechanism and two speeds

Tone arm technology

Adjustable counter weight and anti-skating. Headshell with 1/2- inch fixing holes. Firm torsion tone arm head.

Chassis technology

Massive wooden console. Floating sub-chassis. Damped oscillator aluminum turntables with anti- static felt film.



CS 420 black



CS 420 white

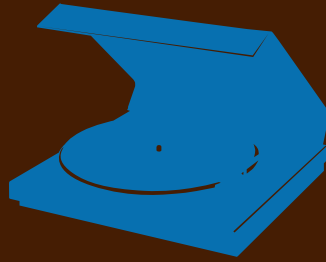
Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed control. Viscosity-damped tone arm lift. Automatic tone-arm cueing mechanism. Auto stop with tone arm return. Delivered with magnetic pick-up DMS 251 S.

made in Germany



Dual

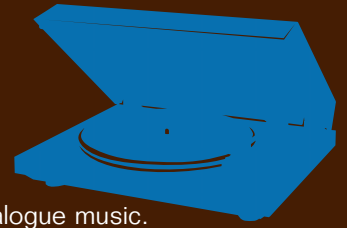




CS 415-2

Fully automatic turntable

Record player with fully-developed technology ensures the pleasure of analogue music.



Premium workmanship...

100% Made in Germany, Entering the DUAL Tradition

Tone arm technology

Adjustable counter weight and anti-skating. Headshell with 1/2-inch fixing holes. Firm torsion tone arm head.

Chassis technology

Massive wooden console. Floating sub-chassis. Damped oscillator aluminum turntables with anti-static felt film.

Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed control. Viscosity-damped tone arm lift. Automatic tone-arm cueing mechanism. Auto stop with tone arm return. Delivered with magnetic pick-up DMS 251 S.



■ made in ■ Germany

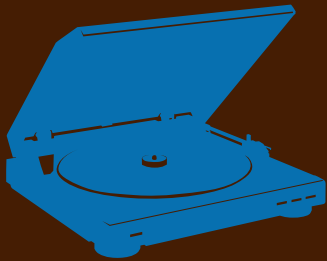




CS 410

Fully automatic turntable

MIDI format turntable with built-in preamplifier



It doesn't get simpler than this...

unpack- place the belt- ready Plug-and-Play devices with phono -pre amplifier - simple and convenient



Tone arm technology:

Tone arm with balanced weight. Preset bearing-strength and anti-skating. Magnetic pick-up with diamond needle.

Chassis technology

Device with special floating feet. Aluminum turntables. Anti-resonance rubber turntable cover.

Drive technology

Belt drive with smooth flat belt. DC motor with electronic rotary speed regulation. Viscous damper tone arm lift. Automatic tone-arm cued device. Auto stop with tone arm return. Selectable cue diameter 17/30 cm. Delivered with magnetic pick-up DMS 402 S.





Technical data

DUAL turntables- long service-life and a customer-friendly service are the attributes for a success story.

Technische Daten

Model	CS 505-4	CS 455-1M	CS 455-1	CS 435-1
Speed in U/min.	33/45	33/45/78	33/45/78	33/45
Synchronous run fluctuations % DIN / WRMS	0.06/0.035	< +/- 0,07/0,04 %	< +/- 0,07/0,04 %	< +/-0,12 % DIN
Rumble interference voltage in dB	52	48	48	46
Rumble voltage distance in dB	75	72	72	68
Pickup system	OMB 10	OMB 10	OMB 10	DMS 251 S
Tracking force in mN (10 mN = 1p)	15 mN +/- 2 mN	15 mN +/- 2 mN	15 mN +/- 2 mN	20 mN (17,5 - 22,5 mN)
Transfer range in Hz	20 Hz - 22 kHz	20 Hz - 22 kHz	20 Hz - 22 kHz	10 Hz - 20 kHz
Depth tracking ability (300 Hz) in m	70 µm bei 315 Hz	70 µm bei 315 Hz	70 µm bei 315 Hz	70 µm bei 315 Hz
Dimensions (BxHxT) in cm	440 x 150 x 375	440 x 119 x 360	440 x 119 x 360	440 x 110 x 360
Weight in kg	5,77	6,54	5,43	3,78
Mains voltage in V	220 - 240 oder 110 - 120	230	230	230
Mains frequency in Hz	50/60	50	50	50

Technische Daten

Model	CS 420	CS 410	CS 415-1
Speed in U/min.	33/45	33/45	33/45
Synchronous run fluctuations % DIN / WRMS	< +/-0,12 % DIN	< +/-0,15 % DIN	< +/-0,12 % DIN
Rumble interference voltage in dB	46	-----	40
Rumble voltage distance in dB	68	60	62
Pickup system	DMS 251 S	DMS 402 S	DMS 251 S
Tracking force in mN (10 mN = 1p)	20 mN (17,5 - 22,5 mN)	-----	20 mN
Transfer range in Hz	10 Hz - 20 kHz	20 Hz - 19 kHz	20 Hz - 18 kHz
Depth tracking ability (300 Hz) in m	70 µm bei 315 Hz	65 µm bei 315 Hz	70 µm bei 315 Hz
Dimensions (BxHxT) in cm	360 x 110 x 350	360 x 98x 349	440 x 110 x 360
Weight in kg	4,92	2,88	3,78
Mains voltage in V	230	230	230
Mains frequency in Hz	50	50	50

■ made in ■ Germany

Dual





analogue
turntables



Exclusive distribution