

SPU Cartridges



*The Sound of Excellence*

**ortofon**  
accuracy in sound

The SPU was launched back in 1958 in response to the demand for cartridges to reproduce the new stereo records. The term “SPU” stands for “stereo pick-up” as phono cartridges were called “pick-ups” in the 1950s and 1960s. Mr. Robert Gudmandsen, one of Ortofon’s then leading engineers, took a principal part in developing this cartridge.

Based on Ortofon’s already 10 year old technology and experience in mono cartridges, the SPU immediately set the standard for professional and audiophile applications and pointed the way for the next 57 years of high-end cartridge design:

- a generator comprising two low-impedance coils
- wound with very fine copper wire and crossed in such a way that the two walls of an LP’s stereo microgroove could generate two discrete signals with maximum separation



The so-called “Ortofon sound” became synonymous with the sound from the SPU, at an early stage. The sound of the SPU cartridge is characterized by a rich bass and a transparent treble range plus those extra qualities, which are so hard to define, but so easy to appreciate when they are realized.

With no other cartridge over the course of half a century, have we ever had to take so much care in respecting this original sound when improving technical data, as with the SPU model. As a result and in order to show considerations for this goal, our customers will after 59 years still find the basic visuals, the original design, as well as the original elements in the construction of the magnetic circuit kept fully intact.

Evidently, the product has changed throughout its lifetime. New possibilities in regards to housing materials, diamonds

and magnetic & damping systems have been employed to improve the SPU and its performance, whilst at the same time we remain faithful to the original concept.

A key SPU feature is an integrated headshell, designed to mount directly into classic tonearms with detachable headshells - tonearms such as the SME 3009 and 3012, and other tonearms with similar “universal” tonearm mounts. Quite simply, there is no finer complement to a classic tonearm with a detachable headshell than an Ortofon SPU.



Back in 1958 the Ortofon SPU sounded like no other cartridge because it was way ahead of its competition. Today the SPU still has a sound that is definitely its own and it enjoys a remarkable following - in particular among audiophiles whose systems are comprised of vintage valve equipment and horn or reflex speakers.



## SPU Mono Series

The SPU Mono models provide an authentic method of playing back early Mono recordings with a remarkable level of sonic accuracy.

The SPU Mono GM MkII is a high output cartridge with a spherical stylus profile, for the playback of early 25 µm mono recordings with 33 and 45 r.p.m.. Its 3 mV high output eliminates the need for a moving coil transformer.



The SPU Mono CG cartridges are available in two versions determined by the diamond tip radius 25 and 65 µm: the 25 µm diamond for Mono LPs with 33 and 45 r.p.m. and the 65 µm diamond for 78 r.p.m.



The SPU CG models have a 1.5 mV output, which makes the cartridges suitable for use with a variety of medium-gain moving coil transformers.

## SPU Classic Series

The SPU Classic series, as the name implies, embodies the essence of the original Moving Coils. With their linearity and full bodies, these cartridges are a perfect solution for the playback of both early and contemporary Stereo recordings.

The SPU Classic series is known for its dynamic and powerful sound reproduction, without any roughness, minimum of intermodulation distortion and a splendid channel separation, the images being firm and positive.



The SPU Classic N and SPU Classic NE cartridges, with their half-inch adaptor, provide the ability to mount the unit on standard headshells, as well as in a wider range of tonearms.



## SPU Meister Silver GM MkII

The masterpiece of Mr. Robert Gudmandsen, the SPU Meister Silver was introduced in 1996 as a technological improvement of great importance: Ortofon has succeeded in having the purest silver wire ever produced for coil winding process.

The SPU Meister Silver GM MkII has been outfitted with high purity multi-conductor 6-nines Silver wire for a more open and revealing high-end presentation. The Nude Elliptical stylus tip mass has been decreased by a factor of more than 50%, resulting in increased tracking ability and reproduction of dynamic detail.



The generator system has been revised to produce a slightly higher output to ensure compatibility with a wider range of moving coil transformers and active MC preamplifiers.

## SPU #1 S and E

The SPU #1 models are perfect all-rounders for the newcomers to the world of SPU. The SPU #1 S and SPU #1 E feature respectively Spherical and Elliptical styli, High Purity Copper armature windings and Ground wood and resin composite housings. The SPU #1 E elliptical stylus profile provides more detailed sound reproduction and expansive imaging.

With their linearity and full bodies, the SPU #1 models are a perfect solution for the playback of stereo recordings. Sonically, the SPU #1 models are genuine SPUs, known for their full-bodied and powerful music image, minimum of intermodulation distortion and an impressive channel separation.

## SPU Synergy GM

The SPU Synergy modernizes the classic SPU design with a number of optimizations developed for optimum compatibility and sonic purity. The SPU Synergy transducer system allows extraordinary synergy of sonorous sound.

Very low coil-resistance combined with unusually high output of 0.5 mV, achieved by using Neodymium magnets, is decisive for reaching the high signal-to-noise ratio. The exceptional black polished Urushi painting on the SPU Synergy wood-based housing suggests a precious jewel-like appearance.



A revised generator system, which allows for a maximum output of 0.5 mV, relaxes the requirement for high gain transformer or active pre-amplification systems.

## SPU Royal

The SPU Royal GM and Royal N models were launched in 1998 to celebrate the Ortofon 80-year anniversary. The SPU Royal GM MkII provides a playback experience that embodies the essence of analog, with generous refinements, which bring the legendary SPU cartridges into the realm of unrivaled perfection.

The addition of Ortofon’s unique Replicant 100 stylus and reduced tip mass ensures open and detailed sound reproduction for a purely exquisite listening experience.



Electrum coils, consisting of a gold and silver alloy, provide uncolored and precise transmission of armature movements, while the slightly modified damping system makes it possible to reduce vibrations within the cartridge body and achieve a higher level of linearity.

The SPU Royal N cartridge, with its half-inch adaptor, provides the ability to mount the unit on standard headshells, as well as in a wider range of tonearms.



## SPU A95

The SPU 95<sup>th</sup> Anniversary model represents the pinnacle of SPU cartridges. Much like Robert Gudmandsen’s revolutionary ideas, which catapulted the SPU to market prominence, endless research and conceptual designs have developed further in this very special SPU A95 model.

The inclusion of the renowned Field Stabilizing Element system allows for greater dynamics, absolute clarity, and depth of sound for truly sonic performance.

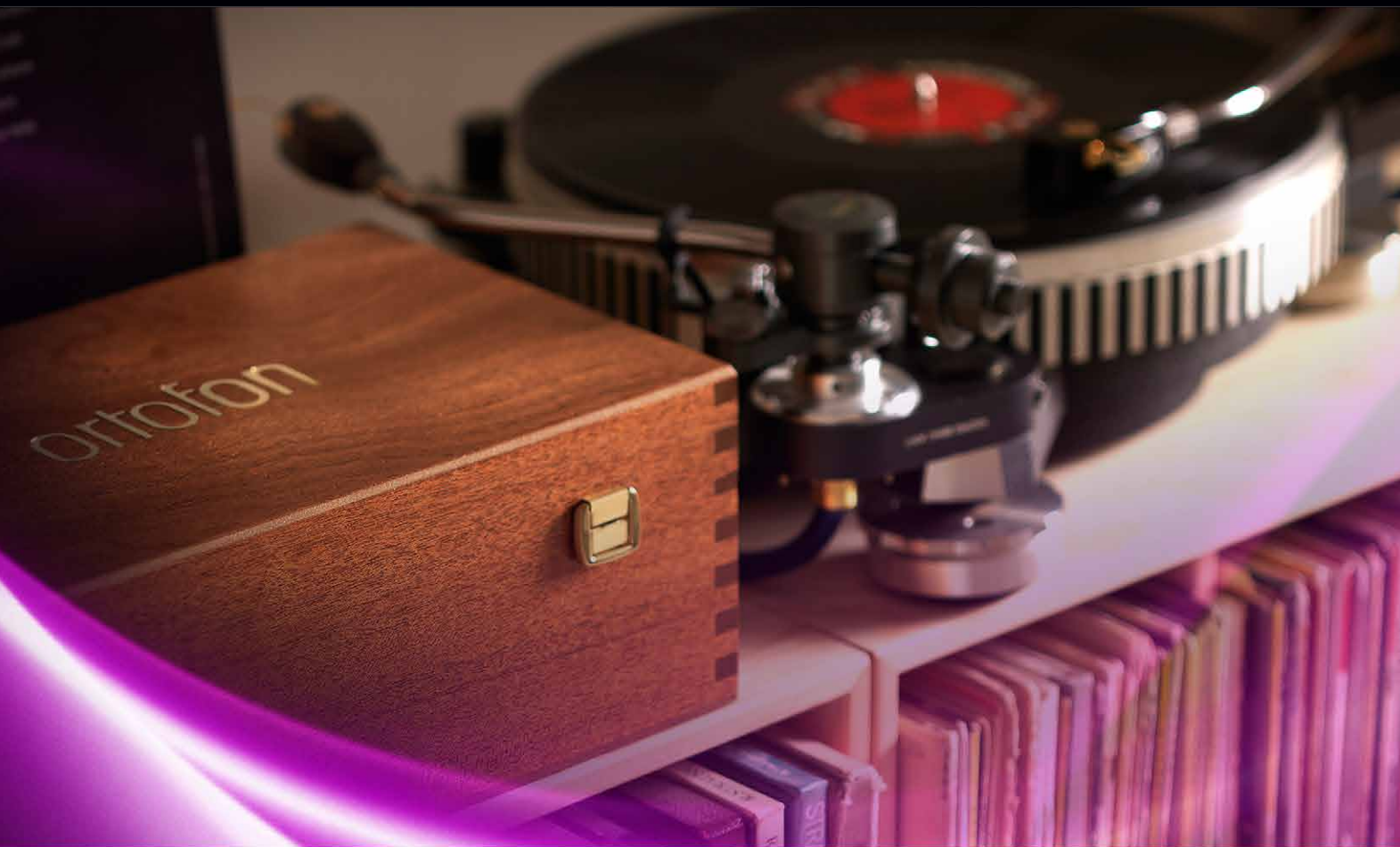


The mechanical structure of the SPU A95 cartridge has been re-engineered: at the mechanical heart lies a revolutionary customized Selective Laser Melting manufacturing procedure.

The use of Titanium in SPU A95 has provided a further improvement to the internal damping capabilities as well as to the overall rigidity of the structure. The SPU A95 has gone to the next level by reducing unwanted vibrations in the cartridge. Also adding to the sonic performance of the SPU A95 is nothing but the best internal coil wiring, comprised of silver plated ultrahigh purity (6N) copper wire.

“SPU A95 is quiet in the groove, with lots of detail, a fine sense of space on stereo records and ability to convey depth and perspective and the “wholeness” of individual sounds.” Art Dudley, Stereophile December 2014.

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# *The Sound of Excellence*

Being the inventor of the world famous SPU stereo cartridge in 1958, most music lovers find that today there is no other name, which is more involved in the history of analogue reproduction than Ortofon.

The fact that Ortofon has kept the SPU in production for more than half a century says a lot about the enduring rightness and beauty of the SPU design. The SPU is the only Ortofon stereo cartridge that has survived since 1958 and from all over the world gained a reputation second to none for an outstanding analogue sound reproduction.



# SPU Cartridges



TECHNICAL DATA	Mono GM MkII	CG 25 Di MkII	CG 65 Di MkII	Classic GM MkII / Classic N	Classic GM E MkII / Classic N E
Output voltage at 1 kHz, 5cm/sec.	3 mV	1.5 mV	1.5 mV	0.2 mV	0.2 mV
Channel balance at 1 kHz				< 1 dB	< 1 dB
Channel separation at 1 kHz				> 20 dB	> 20 dB
Channel separation at 15 kHz				> 10 dB	> 10 dB
Frequency range at - 3dB	20-20,000 Hz	20-18,000 Hz	20-18,000 Hz	20-25,000 Hz	20-25,000 Hz
Frequency response 20 Hz - 15 kHz	+ 2 / - 1 dB	+ 3 / - 1 dB	+ 3 / - 1 dB		
Frequency response 20 Hz - 20 kHz				± 3 dB	+ 3 / - 2 dB
Tracking ability at 315Hz at recommended tracking force *)	70 µm	60 µm	60 µm	65 µm	65 µm
Compliance, dynamic, lateral	12 µm/mN			8 µm/mN	8 µm/mN
Stylus type	Spherical	Spherical	Spherical	Nude Spherical	Nude Elliptical
Stylus tip radius	R 25 µm	R 25 µm	R 65 µm	R 18 µm	r/R 8/18 µm
Tracking force range	3.0-5.0 g (30-50 mN)	3.0-4.0 g (30-40 mN)	4.0-5.0 g (40-50 mN)	3.0-5.0 g (30-50 mN)	3.0-5.0 g (30-50 mN)
Tracking force, recommended	4.0 g (40 mN)	3.5 g (35 mN)	4.5 g (45 mN)	4.0 g (40 mN)	4.0 g (40 mN)
Tracking angle	20°	20°	20°	20°	20°
Internal impedance, DC resistance	100 Ohm	6 Ohm	6 Ohm	2 Ohm	2 Ohm
Recommended load impedance	47 kOhm	> 100 Ohm	> 100 Ohm	> 10 Ohm	> 10 Ohm
Cartridge body material	Ground wood and resin composite	Ground wood and resin composite	Ground wood and resin composite	Ground wood and resin composite	Ground wood and resin composite
Coil wire material	High Purity Copper (OFC)	High Purity Copper (OFC)	High Purity Copper (OFC)	High Purity Copper (OFC)	High Purity Copper (OFC)
Cartridge colour	Black	Black	Black	Black	Black
Cartridge weight, GM model	30 g	37 g	37 g	30 g	30 g
Cartridge weight, N model				13 g	13 g



TECHNICAL DATA	Meister Silver GM MkII	Synergy GM	SPU #1 S/E	Royal GM MkII / Royal N	SPU A95
Output voltage at 1 kHz, 5cm/sec.	0,3 mV	0.5 mV	0.18 mV	0.2 mV	0.3 mV
Channel balance at 1 kHz	< 1 dB	< 1.5 dB	1.5 dB	< 1 dB	1 dB
Channel separation at 1 kHz	> 20 dB	> 23 dB	20 dB	> 25 dB	23 dB
Channel separation at 15 kHz	> 10 dB	> 15 dB	10 dB	> 20 dB	15 dB
Frequency range at - 3 dB	20-25,000 Hz	20-30,000 Hz	20-20,000 Hz	20-60,000 Hz	20-30,000 Hz
Frequency response 20 Hz - 20 kHz	+2 / -1 dB	± 2 dB	± 3 dB	+ 1.5 / - 0 dB	± 2 dB
Tracking ability at 315 Hz at recommended tracking force *)	70 µm	70 µm	65 µm	70 µm	70 µm
Compliance, dynamic, lateral	8 µm/mN	8 µm/mN	10 µm/mN	8 µm/mN	9 µm/mN
Stylus type	Nude Elliptical	Nude Elliptical	Spherical / Elliptical	Nude Replicant 100	Nude Elliptical
Stylus tip radius	r/R 8/18 µm	r/R 8/18 µm	R 18 µm / r/R 8/18 µm	r/R 5/100 µm	r/R 8/18 µm
Tracking force range	3.0-5.0 g (30-50 mN)	2.5-3.5 g (25-35 mN)	3.0-5.0 g (30-50 mN)	2.5-3.5 g (25-35 mN)	2.5-3.5 g (25-35 mN)
Tracking force, recommended	4.0 g (40 mN)	3.0 g (30 mN)	4.0 g (40 mN)	3.0 g (30 mN)	3.0 g (30 mN)
Tracking angle	20°	20°	20°	20°	20°
Internal impedance, DC resistance	3 Ohm	2 Ohm	2 Ohm	7 Ohm	2 Ohm
Recommended load impedance	> 10 Ohm	10 - 50 Ohm	> 10 Ohm	> 100 Ohm	10 - 50 Ohm
Cartridge body material	Ground wood and resin composite	Ground wood and resin composite	Ground wood and resin composite	Ground wood and resin composite	Ground wood and resin composite
Coil wire material	Silver, 6-nines	High Purity Copper (OFC)	High Purity Copper (OFC)	Electrum	Silverplated Copper
Cartridge colour	Shiny Black	Shiny Black	Shiny black	Shiny Black	Shiny Black
Cartridge weight, GM model	30 g	30 g	30 g	30 g	28 g
Cartridge weight, N model				13 g	

\*) Typical value