

SPU Cartridges

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The Sound of Excellence

In the late 1950s the iconic SPU cartridge range featured Ortofon's newly introduced low coil resistance and impedance concept. As a basis for reproducing superb high frequencies, this concept has been continually improved and refined in the decades since.

With the recent launch of both the SPU Anniversary 85 and MC Rondo cartridges, Ortofon has introduced a new era of wood-based housing structures. The benefits of this natural material for cartridge housings mimic the centuries old tradition of hand crafted musical instruments with all the acoustic benefits.

The new developed Ortofon Synergy SPU-cartridge continues the predecessor's concept whilst adding a new large sound image. The addition of unsurpassed technical data adds up to a highly sophisticated package.

The exceptional black polished Urushi painting on the new SPU-housing suggests a precious jewel-like appearance. The musical instrument theme continues - the superb black glazing paint is of a quality found only on famous name pianos. Not only is the visual impression most attractive but the new transducer system allows extraordinary Synergy of sonorous sound.

Very low coil-resistance combined with unusually high output (achieved by using Neodymium magnets in a soft iron circuit with high saturation) was decisive for reaching the high signal to noise ratio achieved with the new Synergy SPU-cartridge.

By controlling the cantilever and armature movements in air-gap with very high-magnetic induction, Ortofon has used its comprehensive expertise in designing the right type of damping for the new system.



The nude, finely polished elliptical diamond in combination with the aluminium cantilever has both had essential influence on the final frequency-response.

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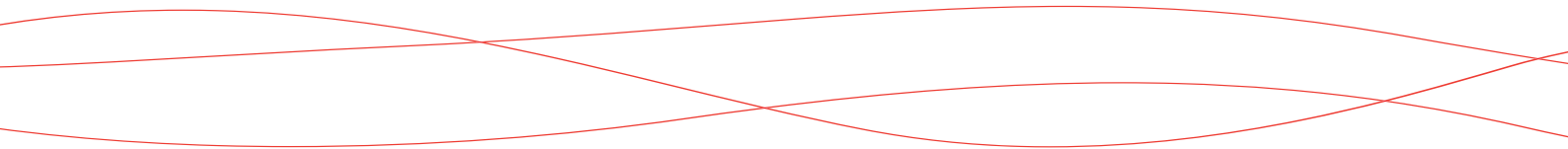


TECHNICAL DATA	SPU ROYAL GM	SPU ROYAL N	SPU MEISTER SILVER GM	SPU Synergy	SPU CLASSIC GM E
Output voltage at 1000 Hz, 5cm/sec.	200 µV	200 µV	300 µV	500 µV	200 µV
Channel balance at 1 kHz	< 1 dB	< 1 dB	< 1 dB	< 1,5 dB	< 1 dB
Channel separation at 1 kHz	> 25 dB	> 25 dB	> 20 dB	> 23 dB	> 20 dB
Channel separation at 15 kHz	> 20 dB	> 20 dB	> 10 dB	> 15 dB	> 10 dB
Frequency range at - 3dB	20-60.000 Hz	20-60.000 Hz	20-25.000 Hz	20-30.000 Hz	20-25.000 Hz
Frequency response	20-20.000 Hz + 1,5 / - 0 dB	20-20.000 Hz + 1,5 / - 0 dB	20-20.000 Hz + 2 / - 1 dB	20-20.000 Hz ± 2 dB	20-20.000 Hz + 3 / - 2 dB
FIM distortion at recommended tracking force, DIN 45.542	< 1%	< 1%	< 1%	< 1%	< 1%
Tracking ability at 315Hz at recommended tracking force	70 µm	70 µm	> 70 µm	70 µm	65 µm
Compliance, dynamic, lateral	8 µm/mN	8 µm/mN	8 µm/mN	8 µm/mN	8 µm/mN
Stylus type	Nude Ortofon Replicant 100	Nude Ortofon Replicant 100	Nude elliptical	Nude elliptical	Nude elliptical
Stylus tip radius	r/R 5/100 µm	r/R 5/100 µm	r/R 8/18 µm	r/R 8/18 µm	r/R 8/18 µm
Equivalent stylus tip mass	0,45 mg	0,45 mg	0,45 mg	0,45 mg	1,0 mg
Coil					
Tracking force range	2,5-3,5 g (25-35 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)	3,0-5,0 g (30-50 mN)
Tracking force, recommended	3,0 g (30 mN)	3,0 g (30 mN)	4,0 g (40 mN)	3,0 g (30 mN)	4,0 g (40 mN)
Tracking angle	20°	20°	20°	20°	20°
Internal impedance, DC resistance	6 Ohm	6 Ohm	6 Ohm	2 Ohm	6 Ohm
Recommended load impedance	> 100 Ohm	> 100 Ohm	> 10 Ohm	10 - 50 Ohm	> 10 Ohm
Cartridge body material	Aluminium	Royal blue aluminium	Aluminium	Grinded wood	Aluminium
Cartridge colour	Nickel/Black	Blue/Gold	Silver/Black	Shiny Black	Nickel/Black
Cartridge weight	28,5 g	12,8 g	28,5 g	30 g	28,5 g

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TECHNICAL DATA	SPU CLASSIC GM	SPU MONO GM	MONO CG 25 DI	MONO CG 65 DI
Output voltage at 1000 Hz, 5cm/sec.	200 µV	3 mV	1,5 mV	1,5 mV
Channel balance at 1 kHz	< 1 dB			
Channel separation at 1 kHz	> 20 dB			
Channel separation at 15 kHz	> 10 dB			
Frequency range at - 3dB	20-25.000 Hz	20-20.000 Hz	20-18.000 Hz	20-18.000 Hz
Frequency response	20-20.000 Hz ± 3 dB	20-15.000 Hz + 2 / - 1 dB	20-15.000 Hz + 3 / - 1 dB	20-15.000 Hz + 3 / - 1 dB
FIM distortion at recommended tracking force, DIN 45.542	< 1%			
Tracking ability at 315Hz at recommended tracking force	65 µm	> 70 µm	> 60 µm	> 60 µm
Compliance, dynamic, lateral	8 µm/mN	12 µm/mN		
Stylus type	Nude spherical	Spherical	Spherical	Spherical
Stylus tip radius	R 18 µm	R 25 µm	R 25 µm	R 65 µm
Equivalent stylus tip mass	1,0 mg	1,0 mg	1,0 mg	1,0 mg
Coil				
Tracking force range	3,0-5,0 g (30-50 mN)	3,0-5,0 g (30-50 mN)	3,0-4,0 g (30-40 mN)	4,0-5,0 g (40-50 mN)
Tracking force, recommended	4,0 g (40 mN)	3,5 g (35 mN)	3,5 g (35 mN)	4,5 g (45 mN)
Tracking angle	20°	20°	20°	20°
Internal impedance, DC resistance	6 Ohm	100 Ohm	6 Ohm	6 Ohm
Recommended load impedance	> 10 Ohm	47 kOhm	> 100 Ohm	> 100 Ohm
Cartridge body material	Aluminium	Aluminium	Aluminium	Aluminium
Cartridge colour	Nickel/Black	Nickel/Black	Black	Black
Cartridge weight	28,5 g	28,5 g	32 g	32 g



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accuracy in sound