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Sojitz Corporation

**Sojitz Group Member SPS SYNTEX to Market Small Desktop
Spark Plasma Sintering System for Use in Advanced Material R&D
- Guiding Concept from Tohoku University
Realizes High Performance and Compact Size -**

SPS SYNTEX INC., a member of the Sojitz Group engaged in research, development, production and sales of spark plasma sintering (SPS) systems, has completed development of “DR. SINTER LAB Jr.” – a small desktop-model SPS system designed for use in basic research and development of advanced materials. The company is gearing up to market this new product to research laboratories and educational institutions.

SPS is a technology used to sinter metals, ceramics and other materials in powdered form with pressure and heat generated through direct application of DC pulse current. It opens the door to sintering of nanophase materials, functionally graded materials, thermoelectric semiconductor materials and other materials difficult to sinter with conventional approaches. SPS facilitates sintering by inhibiting material grain growth and preventing damage to material characteristics. The ability to change temperature increase speed and sintering time, and thereby control constitutional structure, is a vital key in the mission to realize stellar quality. Actual sintering time, is slashed to one-fifth to one-twentieth that of competing sintering methods, contributing to energy savings. SPS systems are utilized for materials research and production of hard metal tool materials, sputtering target materials and numerous other fields. Recent progress has seen system use also expand to energy-related thermoelectric materials, battery materials, magnetic substances, IT-related high thermal conductivity materials and other cutting edge domains.

The DR. SINTER LAB Jr. system is engineered for compact size and space savings, while being safe and simple for most anyone to operate. With maximum pulse current output of 1,000 amperes (A), maximum sintering temperature of 2,500°C and

maximum pressure of 20 kilonewtons (kN), the sintering temperature sphere for a sample 10mm in diameter is 2,000~2,200°C, while for a 30mm-diameter sample the range is 800~1,000°C. Adopted for the pressurization mechanism is a servomotor with maximum pressure performance of 20kN, designed for adjustments to fit a wide range of pressure from low to high on the scale. These and other features effectively equip the system with the outstanding performance and function needed to spearhead basic research into innovative new materials.

DR. SINTER LAB Jr. is derived from a system jointly developed through the guiding vision of Professor Takashi Goto of the Institute for Materials Research at Tohoku University. This model carries on the essential functions while reducing system cost. In more specific terms, while maintaining solid output necessary for application in full-fledged basic research, the system price is held to roughly half that of the smallest sized conventional models (based on SPS SYNTEX comparisons). Depending on what options are selected, system prices range from 6 to 9 million yen.

SPS SYNTEX is a pioneer in the SPS system field in Japan, with its extensive product lineup spanning small-size research-use units to large-size industrial production systems. To date, the company has made deliveries of some 300 systems to customers in Japan, the United States, China, India and other countries. SPS SYNTEX is more determined to expand its sales of high-performance small-size SPS systems to national research institutes, local government research laboratories, technical colleges, universities, graduate schools and other educational institutions.

“DR. SINTER LAB Jr.” Specifications	
Maximum Pulse Current Output	1,000 amperes
Maximum Sintering Temperature	2500°C
Maximum Pressure	20kN
Pressure Stroke	50mm
Size (W×D×H)	1,200mm × 800mm × 1,645mm (including specialized table)
Sales Price	6~9 million yen (Japanese domestic price)



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