

Method and Device for Maximum Packing of Cylindrical Objects

Device uses an optimized packing algorithm to create concise coordinates for the placement of cylindrical objects

The U.S. Navy seeks to commercialize U.S. Patent 8,291,567 (Method for maximizing packing density with cylindrical objects in cylindrical cavities).

Background

Current methods and devices for holding cylindrical objects (i.e. cell batteries) do not fully maximize packing density, limiting their space saving potential. Some of these common approaches include gluing objects in rows and symmetrically arranging them in geometrical shapes. Although easy to employ, such approaches are limited when forming complex space-saving configurations.

The Technology

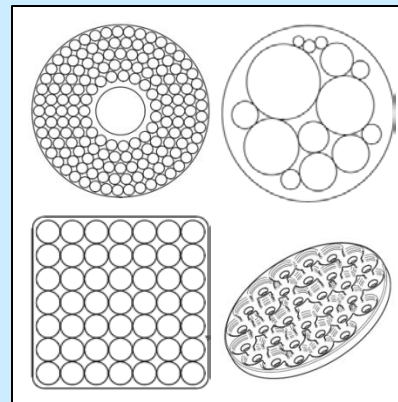
SSC Pacific has developed a technology that allows for maximum packing of cylindrical objects. Originally designed for cell batteries, including those used in many high-tech and high energy devices, this technology uses established optimized packing algorithms for the development of space-saving holders that can be easily configured for various applications. The technology effectively allows the user to optimize for space, structural support, or both simultaneously. Applications may include the organization of cell batteries, electrical wiring, or plumbing; thermal management of cell batteries; and packaging of cylindrical objects for storage and transport - all with the option of enclosing objects in epoxy for weatherproofing and/or shock mitigation.

Key Benefits

- Uses optimized packing algorithms in conjunction with cylindrical cavities to form customizable space-saving tray configurations for cell assembly.
- Tray assemblies are easily scalable and can be stacked or used as a “designed-in” fixture to provide stabilization and structural integrity.
- Electrical contacts can be pre-molded into trays.

Development Status

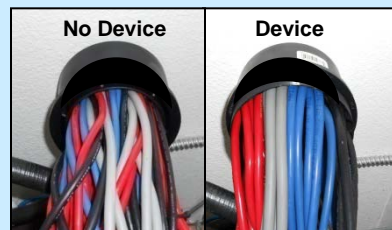
- DoD 5000 Series Technical Readiness Level 8: Actual system completed and qualified through test and demonstration
- DoD 5000 Series Manufacturing Readiness Level 6: Detailed design, manufacturing process, and procedures completed



Various device configurations can be used with the manufacturing method.



AA cell holder device manufactured using an optimized circle packing algorithm. Can be manufactured to include electrical contacts.



Additional uses include organizing plumbing, wiring, and other cylindrical objects into a space-saving configuration.

For more information on technology transfer, please contact us at (619) 553-5118 or email ssc_pac_t2@navy.mil

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