# How Waterproof 12VDC to 32VDC USB-C Chargers Are Powering Modern Aerospace Platforms in Harsh Environments

**Aerospace Devices Inc. has expanded deployment of its ruggedized SkyDock Pro USB-C 100-Watt chargers across aerospace platforms where standard charging equipment consistently fails.**

**Irvine, California Jan 22, 2026 (Issuewire.com)** - Coast guard crews on six-hour ocean patrols. Aerial firefighting teams overactive wildfires. 1ST responder / Medivac, Military rotorcraft moving from desert heat to high-altitude cold. These operators share a common problem: consumer-grade chargers that work fine in the hangar but fail weeks into actual deployment.

The Ruggedized, Harsh Environment SkyDock Pro SKD-505 USB C 100-Watt series was engineered specifically for these conditions.

### The Problem with Standard Charging Equipment

Consumer USB chargers assume a stable world. Consistent voltage. Room temperature. No vibration. Dry air. Remove any of those assumptions and reliability drops fast.

Aircraft and marine electrical systems do not deliver clean, stable power. Engine starts creating voltage spikes. Load cycling causes fluctuations. A helicopter rotor, marine propulsion, even land or sea conditions generates constant vibration that loosens connections and fatigues components. Coastal operations expose electronics to salt air that corrodes circuit boards within months. These conditions demand a proper harsh environment USB power device, not repurposed consumer hardware.

First responder crews and military operators learned this through expensive experience. Chargers that tested fine on the ground would fail weeks into actual deployment. Replacement units would follow the same pattern. The root cause was simple: equipment designed for offices and vehicles cannot survive aerospace operating conditions.

### Engineering for Real-World Aerospace Conditions

The SkyDock Pro SKD-505 series takes a different approach. Rather than adapting consumer technology for aviation use, Aerospace Devices designed from scratch for harsh environment requirements.

The SkyDock Pro USB C 100-Watt functions as a waterproof marine-grade USB charging port with encapsulated circuit boards and sealed housing. Salt air, humidity, direct moisture exposure, dust, and particulates stay outside where they belong. This waterproof construction has proven essential for coast guard, offshore, and marine patrol aviation where salt exposure destroys standard electronics within months. Operating temperature range spans -40°C to +105°C, covering everything from arctic operations to hot tarmac pre-flight.

As a 12VDC to 32VDC input Power USB-C charger, the SkyDock Pro handles the voltage variations found across fixed-wing aircraft, rotorcraft, marine vessels, and tactical vehicles without platform-specific variants. This wide input range eliminates the need for different charger models across mixed fleets. Integrated voltage spike protection absorbs the electrical transients that occur during engine

starts and equipment cycling. Stress testing to 20g acceleration and DO-160G certification across vibration, shock, altitude, and decompression categories confirms the design holds up under actual flight conditions.

The 100-watt USB-C Power Delivery output keeps pace with current device requirements. Laptops, tablets, EFBs, and communication equipment all draw more power than legacy 15-watt USB-A ports can supply. Voltage negotiation at 5V, 9V, 15V, and 20V handles the range automatically.

**Where These Systems Are Operating Today**

SkyDock Pro USB C 100-Watt chargers now power devices across a range of demanding applications:

Military rotorcraft running extended missions where crews depend on tablets and mission systems throughout flight. Coast guard and offshore patrol aircraft dealing with salt air exposure that destroys standard electronics. Aerial firefighting helicopters and fixed-wing tankers where equipment failure during operations creates real safety risk. Medevac and search and rescue platforms that cannot afford dead devices when lives depend on communication and coordination. Aircraft supporting remote research stations, mining operations, and humanitarian missions far from technical support.

The common thread is environments where standard equipment fails, and failure has consequences beyond inconvenience. A reliable 12VDC to 32VDC input USB-C charger becomes essential infrastructure rather than a convenience feature.

**Aerospace Equipment Manufacturing Standards**

Aerospace Devices manufactures the SkyDock Pro at its AS9100D and ISO9001:2015 certified facility in Irvine, CA. DO-160G qualification test procedures and reports are available to customers evaluating products for specific platform requirements.

Current OEM approvals include Bombardier, Lear Aircraft, Embraer, and Dassault Falcon Jet installations. The company received the 2024 Aerospace & Defense Review Annual Award for "USB Charging Plug & Devices Company of the Year."

Mounting options include universal brackets, roll bar mounts, and under-seat installations. Custom bezels and cover plates match cabin aesthetics across different airframes. In-house 3D printing supports rapid prototyping for non-standard mounting requirements.

**About Aerospace Devices Inc.**

Aerospace Devices Inc. designs and manufactures DO-160G certified USB charging systems for commercial aviation, defense, and harsh environment applications. With over 25 years of **aerospace equipment manufacturing** experience, the company serves business jets, regional aircraft, military platforms, and first responder rotorcraft worldwide from its Irvine, California headquarters.

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