

AEROSPACE & DEFENSE











These two industries are intertwined as they lean on each other and require the same certifications and must meet similar requirement sets.

AEROSPACE

Within the aerospace sector, the reliability and performance of each component within the system are of utmost significance. The significance lies in the fact that thousands of lives depend on these components each day when airborne.

The aerospace sector operates within a context where precision, safety, and efficiency are non-negotiable factors. Every element, from the smallest part to the most complex system, plays a crucial role in ensuring the safety and success of air travel. The responsibilities are immense, and the industry places a strong emphasis on rigorous testing, quality control, and technological advancements to uphold the highest standards.

Ultimately, the aerospace industry is dedicated to meeting the stringent demands that come with the trust placed in it for the well-being and security of countless individuals during air travel.

DEFENSE

Military operations worldwide rely on fail-safe technology to operate effectively in the most challenging and demanding conditions imaginable. The materials and adhesives provided by Link Solutions stand out for their exceptional performance in extreme environments. These environments often involve significant temperature fluctuations and conditions that demand resistance to abrasion. In military applications, where precision and reliability are critical, Link Solutions' materials and adhesives offer a level of resilience that is essential for the success of various missions.

Whether faced with extreme temperatures, harsh climates, or situations requiring resistance to wear and tear, these advanced materials play a pivotal role in ensuring the durability and effectiveness of military equipment and systems.

LINK SOLUTIONS – STANDARDS

Within these two industries, operations involve high-temperature and flame-retardant products, such as;

SAE AS23053

SAE-AS23053, developed by SAE International, is crucial for both the aviation industry and the defense sector. The standard ensures that thermal shrink insulation meets stringent requirements for reliability, safety, and fire resistance under extreme conditions. This encompasses protection against fire propagation and resistance to environmental influences such as vibrations and chemicals. Meeting these criteria is essential to ensure optimal functioning of electrical systems in aircraft and military vehicles.



SAE AS has replaced MIL-DTL, but MIL-DTL is still frequently used as a reference -Therefore, both are mentioned.

MIL-DTL classification

MIL-DTL is a specification from the U.S. military (MIL), where 'MIL-DTL' stands for *"Military Detail Specification"*, outlining the requirements for thermal shrink flexible insulation for electrical wires and cables. The specification covers the precise demands to be met by such insulation in military applications, likely defining parameters such as material properties, tolerances, test methods, and approval requirements to ensure compliance with necessary standards for reliability and performance in military environments.

Both MIL-DTL classifications address various types of thermal shrink flexible insulation.

High-temperature products - SAE AS23053/18

- Insulation Sleeving
- Electrical
- Heat Shrinkable
- Polyvinylidene Fluoride
- Semi-Rigid
- Crosslinked

Flame-retardant products - Classification 5; MIL-DTL-23053/5

- Insulation Sleeving
- Electrical
- Heat Shrinkable
- Polyolefin
- Flexible
- Crosslinked

Classes 1, 3 and 4 are included in the standard.

UL224

Additionally, flame-retardant materials are subject to UL224, which is a standard for heat shrink tubing. UL224 is a standard from Underwriters Laboratories (UL) for flexible thermal shrink insulation for electrical wires and cables.



VW-1

VW-1 is a specific flame test standard developed by Underwriters Laboratories (UL) to assess the fire safety of electrical wires and cables. This standard is part of UL's testing procedure to evaluate cables' fire resistance, particularly their ability to resist flame propagation along the cable surface. When a cable is classified as "VW-1 approved", it means it has passed UL's VW-1 flame test and complies with the specified requirements for fire resistance. This is an important standard in the electrical and electronics industry to ensure that cables meet specific safety requirements regarding fire protection and reducing the risk of fire spread.

LINK SOLUTIONS - PRODUCTS

HT SHRINK LABELS – HIGH TEMPERATURE PRODUCT

The WM-HT Heat Shrinkable Wire Markers are made of flame retarded modified PVDF tubing with ideal printability properties for identification purposes. Ideal for applications where high temperature and extreme fluid resistance characteristics are required.

This product is designed for use in Aerospace, Defense, and Mass Transit applications, wire bundling and assemblies, panel building and industrial installations. Meets UL224 VW-1 for vertical burn test / flammability. They operate at temperatures from -55°C to +225°C.



AMD-2X/3X SHRINK LABELS – FLAME-RETARDANT PRODUCTS

The AMD 2X and 3X Heat Shrinkable markers are made of flame retardant, selfextinguishing, flexible heat shrinkable polyolefin tubing with ideal printability properties for identification purposes.

This product is designed for aerospace, military, defense, and marine applications where UL224 and SAE-AMS-DTL-23053/5 class 1 & 3 characteristics are required. AMD grade identification sleeves meets UL224 VW-1/CSA and AMS-DTL-23053/5 class 1 &

3. The AMD grade identification sleeve is very versatile through excellent balance of chemical, electrical and mechanical properties.

These products are supplied with a 2:1 and 3:1 shrink ratio. These lightweight products offer rapid shrinking and accommodate a broader range of wire diameters, streamlining inventory management.





WHY LINK SOLUTIONS?

Link Solutions stands at the forefront of global innovation, dedicated to creating customized products tailored for the identification and protection of premises, products, and individuals. With a wide-ranging product portfolio, we provide comprehensive solutions to fulfill all your identification needs, even in the most demanding settings.

Our primary focus remains on delivering integrated solutions, merging state-of-the-art printing, software, and application technologies to streamline your workflows. Our products boast unrivaled print longevity and material durability, ensuring reliability in any situation. Leveraging our robust distribution and manufacturing capabilities, we guarantee timely delivery to meet your exact requirements.

Link Solutions' materials are thoughtfully designed for effortless and swift application, enhancing efficiency in your processes. Our labeling solutions play a vital role in connecting key stakeholders across sectors, prioritizing safety above all else.

A COMPLETE SOLUTION

Link Solutions offers a comprehensive range of identification solutions, including thermal transfer printers, specialized systems, meticulously crafted identification materials, and label design software. Yet, our dedication surpasses mere product offerings.

At Link Solutions, we go the extra mile by seamlessly integrating these components with expert support, profound knowledge, and top-notch service. This holistic approach ensures that you receive an elevated and unparalleled identification experience.

Link Solutions stands out as one of the few in the market that meets the specifications required to achieve the best safety in labeling for various areas within the industry.

