Mastering Spiral Wound Gaskets: A Six-Step Guide to Leak-Free Performance & Compliance

Spiral wound gaskets (SWGs) are essential components in sealing applications, particularly for industries striving to achieve low-emission compliance and minimize product losses to enhance operational efficiency. The following six-step guide provides a practical and technical overview of SWGs and their role in emission control initiatives.

BY DALE NORMAN

Step 1: Recognizing the Importance of Low-Emission (LE) Gaskets

As industries transition towards low-emission technologies, SWGs are gaining traction in efforts to reduce fugitive emissions. While consent decrees (CDs) have historically focused on fugitive emissions from valves, there is a growing trend to consider the efficiency of low--emission gaskets, to improve the performance of connectors. Proactive gasket manufacturers are, therefore, proactively offering high-performance SWGs for low-emission applications.

Key Insight: Standardizing low-emission gaskets mitigates legal risks, enhances sustainability efforts, and stays ahead of current regulatory trends.

Step 2: Understanding Consent Decrees and Their Impact

Consent decrees are legally binding agreements between regulatory agencies (e.g., the EPA) and companies found to be in violation of environmental laws or compliance mandates. These agreements typically establish corrective actions, timelines, and penalties, ensuring compliance for industries looking to minimize emissions.

Key Insight: Knowledge of CDs prepares companies for regulatory changes and helps align strategies with compliance goals.

Step 3: Exploring SWG Filler Material Selection

Filler material selection significantly impacts the performance of spiral wound gaskets. Graphite fillers provide high thermal stability, while PTFE fillers offer excellent chemical resistance. TEADIT's Style 913M SWG combines advanced winding construction with premium fillers for high sealing performance in LE applications.

Key Insight: Application-specific filler selection leads to superior leak prevention and long-term reliability.

Step 4: The Role of Proper Flange Assembly

Even high-quality gaskets can fail if installed incorrectly. The ASME PCC-1 standard outlines best practices for flange assembly but does not prescribe specific torque values, as these depend on factors like flange type,

gasket style, and bolt properties. Engaging with trained technicians and following proper bolt-up procedures is essential for achieving proper sealing. Hands-on training and torque guidance will help ensure correct assembly for maximum performance.

Key Insight: Proper installation is critical—invest in training and follow best practices to ensure consistent, high-performance sealing.

Step 5: Preparing for Future Regulations with SWGs

As emission standards tighten, SWGs are expected to play a significant role in compliance. Ensuring that the selected gaskets meet ASME B16.20 performance requirements and utilizing gasket manufacturers who can provide test data, can result in leak rates significantly below the allowable limits.

Key Insight: Upgrading to ASME B16.20–compliant LE gaskets now ensures long-term compliance and operational efficiency.

Step 6: Implementing Low-Emission Gaskets in Your Facility

To transition to low-emission gaskets, facilities must update procurement practices, phase out non-LE gaskets, and provide flange assembly training. Often, companies take a proactive approach by identifying and replacing non-LE gaskets during routine maintenance and turnarounds.

Key Insight: A strategic transition plan to LE gaskets ensures regulatory readiness and enhances overall emission control efforts.

By following these six steps, industries not only gain a deeper understanding of spiral wound gaskets but also enhance compliance and contribute to long-term sustainability. As sealing technology advances, proactive engagement with LE solutions will shape the future of reliability, efficiency, and environmental sustainability.

ABOUT THE EXPERT

Dale Norman, Engineering Manager with 30 years of equipment and seal design experience. A member of ASME B16.20 Subcommittee G and holder of 10+ patents, Dale has led developments of new and existing products with an emphasis on manufacturability and ease of use. His passion is solving problems and challenges, and educating people on what makes products work and why they work.