The Many Facings of Fiber Glass Insulation

Terms: HVAC Insulation

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Subscribe to our blog. FSK, PSK, ASJ, poly-top and vinyl are all common insulation facing terms you may have heard referenced within the insulation industry. At the most basic level, these terms relate to the external, protective surface-facing or jacketing on insulations used for pipes or HVAC ductwork. Facings and jacketings serve several purposes in air handling and piping applications, including helping your system meet building codes, achieve better energy efficiency, and control condensation – just to name a few. We hope that this blog will be able to help you better understand the differences between the facings and jacketings used within the insulation industry today.

First off, let’s take a look at FSK facing, or foil-scrim-kraft. Foil-scrim-kraft is a flame retardant, vapor-barrier, and it is one of the most commonly used facings in the insulation industry today. During the manufacturing process of an FSK facing, a layer of lightweight aluminum foil is layered against a tri-directional, reinforcing fiberglass scrim (yarn) and then paired with a final layer of natural brown kraft paper. This is all laminated together using a flame-retardant adhesive.

Once this process is complete, the facing is rolled into a giant master roll that is delivered to our fiberglass manufacturing facilities. This is where the manufactured fiber glass insulation is adhered to the kraft paper side of the facing. Once the facing has been applied, we manufacture the product into the duct wrap or duct board that you are familiar with using on jobsites today. Johns Manville is the only fiber glass insulation manufacturer in North America that produces its own FSK facing (and ASJ jacket), enabling us to carefully control the quality and properties of the facing we use on our insulation.

FSK facing is most commonly utilized with duct wrap, duct board, and mechanical spin-glas boards on the outward-facing, exposed surfaces of HVAC ductwork. The FSK facing not only serves as a vapor-barrier to facilitate condensation control, but it is also a protective barrier for the fiberglass insulation itself. The aluminum foil gives FSK its distinctive silver color and can typically be easily recognized on any HVAC system. There also are several specialized tape manufacturers that produce FSK tape that matches the FSK facing, providing a uniform appearance on FSK-faced products used in traditional insulated ductwork applications.

Another common facing found in the insulation industry is the ASJ, or the All Service Jacket. The ASJ is also a flame-retardant vapor-barrier facing. It is manufactured very similarly to the FSK facing, using lightweight aluminum foil layered with a tri-directional fiberglass reinforcing scrim, and then coupled with a bleached white kraft paper. Just as with the FSK facing, these layers are all laminated together using a flame-retardant adhesive.

ASJ facing is mold and mildew resistant* for added product protection and is typically used as a jacketing for rigid fiber glass pipe insulation. ASJ jacketing is shipped into our manufacturing facility in giant master rolls, which are then adhered to fiberglass pipe coverings with adhesive. ASJ and FSK are not all that different in terms of their basic, elemental makeup. However, the main difference between the two is the bleached white kraft paper that faces away from the insulated pipe, giving the pipe a clean, aesthetically pleasing, white facing. Essentially, ASJ is, at heart, FSK facing turned inside-out, exposing white, bleached kraft paper.

(*Despite mold resistance, mold can grow on any surface under the right conditions, and as such the insulation is resistant to mold, but not mold-proof.)

This traditional white look has been an industry standard for pipe insulation jacketing for decades. The white appearance is often preferred for aesthetic purposes, as the ASJ jacketing is typically used on exposed piping systems within a building. This white surface makes ASJ jacketing a great choice for a clean, crisp appearance for occupants.

While ASJ certainly provides aesthetic attributes, it also provides pipe insulation with several necessary features for performance, such as a vapor-barrier, thermal barrier, and insulation protection. ASJ-faced pipe insulation has been the trusted mechanical insulation solution for engineers and insulators for more than 40 years. The industry also has several tapes and mastics available to match the white kraft paper, and ensure the appearance of the ASJ facing remains crisp and seamless.

Another facing that you may have come across in the insulation industry today is a PSK (polypropylene-scrim-kraft) facing, which is also known as “poly-top jacketing” in the pipe insulation world. This facing uses a bleached white kraft paper that is laminated with a white polypropylene film and tri-directional fiberglass scrim. PSK facing offers essentially the same basic product attributes we see in the FSK and ASJ materials, such as condensation control and thermal performance, but due to the inherent polypropylene white film there are several added benefits that are not realized with traditional FSK and ASJ material.

When PSK is used on duct wrap, it allows the facing to reach a greater PSI (puncture resistance rating) than traditional FSK material. Additionally, the poly-top jacketing will not show leakage or water stains that can sometimes occur with the use of standard ASJ paper jacketing. The white polypropylene film also gives the end user the ability to lightly clean any blemishes on the surface to ensure that it maintains its original clean, white color.
Finally, the last facing we’ll address that you may see referenced in regard to insulation facings is a called a vinyl facing. Johns Manville has offered a vinyl-faced duct wrap for many years. It can often be seen referenced in old master specs hidden in the depths of an architectural firm’s master spec guide and is rarely used in today’s HVAC insulation world.

The vinyl facing has no reinforced glass fiber scrim and has a much higher permeability rating than the standard FSK, ASJ or poly-film materials. Most applications for vinyl facing in the past have been primarily for an aesthetic use to get the white, clean surface. In today’s world, the PSK facing is a much better and more cost-efficient alternative to traditional vinyl requests.

When it comes to facings in the insulation world, there are a number of different choices, all of which generally serve similar purposes. As the insulation industry continues to mature and evolve, it’s important to make sure you are selecting the right facings to meet the demands of your application and the ever changing needs of today’s insulation and construction world.

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