Open and Shut case

Valves

There are many types of valves used within the bulk handling industry for controlling, conditioning or diverting the flow of powders or liquids. There are three main types of valves, these being shut off, diverter and rotary valves. These types of valves are use in a variety of many differing applications, some products are used to feed or discharge mixers or other processing vessels. Other devices feed bulk materials from non-pressurised hoppers or pressure vessels into pressure or vacuum conveying lines. Solids valves that feed from hoppers to loss-in-weight feeders are also available. Although some industries still use valves that were designed originally for liquids or gases, the solids handling industry through innovative design have designed specialised derivatives specifically for powder handling in order to avoid problems such as jamming, leaking, or cross-contamination.

Shutoff valves

Ball valves provide tight shut off, predictable control, and ease of operation. These valves tend to be full bore when open with no restrictions to product flow. Butterfly valves control flow through a circular disc which is normally rotated through 90 degrees from fully open to fully closed, depending on the thickness of the disc this can potentially restrict the material flow when fully open. slide valves are also full-bore linear action valves used for on/off control or as a throttling device. Gate valves or knife valves are valves that use a flat closure element to provide shut-off. Depending on the type of material it may not be practical to close these valves on a full column of material. Iris valves enclose their mechanical components in a flexible sleeve to prevent the ingress of solid materials.

Diverter Valves

Diverter valves change the direction of the flow of a medium to two or more different directions and are used mainly in process or pneumatic conveying systems to allow for product to be sent to differing destinations across a production facility. Typical applications are filling a range of storage silos from a single tanker discharge point or filling a range of day bins or hoppers within a production facility from a main storage silo or store. Diverter valves are now available for many types of applications and are available in carbon steel or stainless steel and can be certified to be used in Atex controlled areas. They are also suitable for use in positive or vacuum based conveying systems.

Rotary valves

The prime function of a rotary valve is to regulate the flow of material from one section of process to another while maintaining a good airlock condition. These products are mainly used in dry powder or granular processing and can come in two main versions, rotary airlock valves and rotary blowing seals. In principle the valves perform the same function of isolating one area of process from another with the rotary airlock allowing material to flow through the valve in the same plane whereas a rotary blowing seal meters material into a pneumatic conveying system at a controlled rate without transferring the pressure from the conveying system into the vessel. Many of these valves are used in the food industry and as such cleanliness and ease of cleaning is vital to the performance of the valves. These valves are available in easy clean variants and complying with FDA and Atex standards.

As can be seen there are many differing processes under the global heading of process valves, this is where SHAPA can help, with its members many years of expertise through operating and providing valving solutions for material and solids handling processes you can be assured that SHAPA members have the right solution for your process. A quick visit to the Equipment Finder section on the SHAPA website www.shapa.co.uk will guide you through the different choices ensuring you have the right solution for your process needs.

For more information and assistance with all your solids and bulk handling requirements, visit the SHAPA website at www.shapa.co.uk or email your requirements to info@shapa.co.uk where our members will be happy to help.