

WHAT ARE BELLOW SEALED VALVES ?

Bellow Sealed Valves are a new breed of Industrial process valves, designed to eliminate Valve leakage and are also known as 'Zero Leak Valves' or 'Emission Free Valves.'

In these Valves, conventional gland packing is appended/supplemented by a metallic Bellow Cartridge joined to the valve bonnet at one end, and the stem at the other end. A bellow is a long accordion-like tube. As the valve stem strokes, the bellow expands or compresses with the stroke movement. There are no sliding or rotating seals through which process fluid can pass.

Thus the fluid will enter the valve from the seat of the valve & come in contact with the bellow, but will not come in contact with the stem. Since the stem is the only moving part in the valve, it is a source of potential leakage through the gland due to constant friction caused by the axial movement.

In a bellow sealed valve this potential leak is totally avoided due to the metallic bellow which blocks the leak path effectively by not allowing the media to come in contact with the stem and thus the gland.

A bellow is the heart of this type of valve. There are two types of bellows: formed and welded leaf. A formed bellow is made by rolling a flat metal sheet into a tube with longitudinal fusion welding. This tube is then mechanically or hydraulically formed into bellows with rounded and widely spaced folds.

In Welded Leaf-Type Bellows, washer like plates of thin metal are welded together. Welding is carried out on both inner and outer circumference of the washer like plate. A welded leaf bellow has more folds per unit length in comparison with formed Bellows. Thus, for the same stroke length, mechanically formed Bellows are two to three times longer than their welded leaf counterparts. Reportedly mechanically formed bellows fail at random spots, while the welded leaf bellow usually fails at or near a weld.

We at 'Valvola' use only formed bellows, as in spite of being more expensive than welded bellows, their life is many times more than welded bellows. (More details about bellows can be found on page 8 of this catalogue).