



The Inflas soft-sealing butterfly valve has a service life of around one year and is therefore particularly wear-resistant.

That doesn't get out of control

In form- and core-shooting machines, which work with the air-flow method, the quartz sand mixed with binder is shot at high pressure into a core box. The closing fitting of the core box in this application - the butterfly valve - is thus exposed to extreme pressure conditions, which it has to withstand - a great challenge for the plant operator.

The requirements for this valve are extremely high. Under the sand bunker, the pneumatically driven butterfly valve works and fills the core box with quartz sand. At the same time, it acts as a sealing element to ensure the gas-tight closure of the core box at the top. The combination of shooting with quartz sand and gastight closure is a real challenge. The extremely sharp-edged quartz sand, which is mixed with binding agents,

places an enormous load on both the valve disc and the sealing collar. The moulding sand adheres to both components and there is strong abrasion. Due to the large number of opening and closing processes, the parts in contact with the medium wear out and the valve no longer closes gastight (Fig. 1). In this case, the shot literally backfire: the quartz sand flies out of the sand bunker at the top.

The foundries and core-makers are well aware of the problem and try to solve it in different ways. Some maintenance personnel will often replace the wearing parts with the manufacturer's original spare parts, others have the disc armour-plated by build-up welding and then ground to its original size. Still others pour themselves new discs and buy the seats. Either way, an enormous

expenditure for maintenance measures is carried out, because the downtime of the core shooters disturbs the operational sequence, slow down the production and reduces the productivity of the plant. All these efforts contribute only to the short-term resumption of production. However, these do not lead to a significant improvement in service life.

The Hagen, Germany-based company EBRO Armaturen has many years maintained a close exchange with plant engineering and foundries in order to develop long-term functioning valve technology. This applies especially in the field of complicated industrial applications. EBRO engineering expertise is highly popular in many industries, with a large number of special solutions. It has therefore made a name for itself with a large number of special solutions. Many of these valves are now successfully produced in series. The result of the cooperation with plant manufacturers and foundries is very successful. In operation, the soft-sealing EBRO shut-off valve type Z 011-A Inflas with Inflatrol control achieves a significantly longer service life.

The Inflas, as the name suggests, has an inflatable seat. The mode of operation ensures that the parts in contact with the medium, such as liner and disc, are less stressed by the abrasive quartz sand. Tests in foundries have proven that, depending on the switching cycles, service lives of more than one year can be achieved.

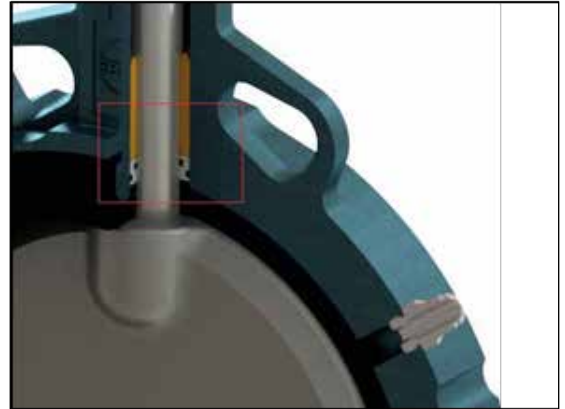
How it works

Before opening the valve disc, the air pressure behind the liner is released. As soon as the pressure has been reduced, the disc opens and the end position „open“ is indicated. Venting the sealing chamber behind the liner causes the valve to open with very low torque. Thus, an extremely low wear of the parts in contact with the medium is achieved at the same time. If the drive signal drops, the disc is closed with little friction/torque and

Figure 1: Worn conventional shut-off valve that no longer seals gas-tight



Figure 2: The cascade shaft seal offers additional safety



the end position „closed“ is indicated. A plausibility check is performed. If the disc is completely closed, the liner is pressed evenly against the disc with low air pressure. The medium is shut off safely and wear is significantly reduced.

The inflation function also ensures that the pressure tightness is maintained when the materials begin to wear.

Special Features

The liners of the EBRO valves are provided with profiles on both sides in the outer housing recess, in comparison to standard liners on the market. These ensure a tight fit between the liner and body. The liner collar is therefore one of the special quality features of the EBRO butterfly valves. A liner made of highly abrasion-resistant nitrile (NBR) was developed especially for this application. Alternatively, the liner can be supplied in SBR green (polyurethane). In order to achieve the best possible wear resistance of the valve disc processing quartz sand, it is manufactured as standard in high-alloy cast steel of quality 1.4408 or, at an extra charge, in Hardox, i.e. wear and abrasion-resistant steel.

The body is provided with connections for inflating the sealing sleeve and is specially machined inside so that the air pressure cannot escape contrary to its intended purpose. By inflating the highly abrasion-resistant liner, wear and tear is compensated for, resulting in the service life of the fitting being significantly extended. In order to prevent the air pressure from escaping into the shaft area via the collar, EBRO-Inflas valves in core shooters are equipped as standard with an elaborate cascade shaft seal. This also ensures that the triple shaft bearing is protected against dirt and dust (Fig. 2). The control for inflating the seat can be used from the machine at the factory, or alternatively supplied by EBRO. The Hagen-based company offers a plug & play solution, so that only the valve with the pneumatic actuator has to be replaced on the existing plant. Everything else remains untouched.

The sealing system „Inflas“ was developed for applications with highly abrasive materials and is available for all soft sealing EBRO butterfly valves with replaceable seats from DN 80 - DN 400.