AVK UK COKE OVEN VALVES

HELPING REGENERATE THE UK IRON AND STEEL INDUSTRY

AVK UK has recently delivered four large Donkin manufactured coke oven valves to the integrated iron and steel works in Port Talbot, South Wales. Despite the recent industry headlines, it is important to note that significant investment continues in other areas of the UK iron and steel industry.

Blast furnaces are fundamental to the creation of iron and steel. They are used to create iron which is then smelted to make steel. The blast furnaces need coke as part of the iron making process. The coke is created by heating coal to temperatures of 1200-1300C° in the absence of oxygen for a period of around 18 hours, a process called pyrolysis. The hot toxic gases and impurities from the coke ovens are extracted through a network of pipes and used for a variety of purposes including heat recovery.

Pioneering valve technology for over 150 years, AVK specialise in the application of coke oven valves and were the obvious choice for Port Talbot Steel Works.

AVK's, Donkin manufactured Series 662 coke oven valves act as isolation valves on the pipe network, cutting off the flow of gases. The valves are critical but used infrequently, during shutdowns or emergencies for example. The toxic environment in which they operate, including the presence of 'tar', has led to the evolution of a design which is unique to coke oven valves.

On a typical gate valve the stem and yoke are housed within the body and bonnet of the valve. In a coke oven valve, to avoid the potential of corrosion from the toxic environment, the stem and yoke sit outside the body. To eliminate the build up of tar and other impurities on the face of the gate, steam flushing ports have been incorporated into the body of the valve. A jacking point has been inserted below the valve seat to enable the gate to be opened should its movement be compromised after a long period of being in the closed position.

Coke ovens are large, often up to 20m in length and 10m high. The pipework is on the same scale. At Port Talbot, for example, two of the valves are DN1200mm and the others are DN900mm. As with all AVK products, quality is paramount. There is 100% quality control and traceability with every casting and component individually stamped.

For further details, please contact:

Andy Hatton
REGIONAL MANAGER
E: anha@avkuk.co.uk
M: +44 7395 795814

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The current donkin range of gate and slide valves have been supplied into the worldwide industrial markets for many years and are mostly used in steel works for coke and blast furnace gas applications and also coke oven liquor recovery.

Series 662
The 662 valve has been extensively used for over 50 years by the worlds steel industry. This demonstrates the excellent pedigree of the valve design and its suitability within the harsh environment of a working steel plant.

Features and benefits

Water sealing facility
To ensure 100% safety the Donkin Series 662 valve is water sealable. Water can be introduced into the bonnet of the valve and into the cavity between the sealing faces around the circumference of the valve door. With the door closed any small leak on the upstream seat is carried away with the water flow and cannot be carried over to the downstream of the valve.

Steam cleaning points
The valve is available with up to 16 strategically placed and easily accessible steam cleaning points. These facilitate the injection of steam into the valve internals to dislodge and remove excessive solidified tar deposits.

2" full bore drain
A large full bore drain point is situated on the access plate at the base of the valve body which allows residue and debris to wash out of the valve during any cleaning process.

Accessible area with inspection plate
Situated at the base of every valve is a large deep accessible area with inspection plate to accommodate build up of debris in the pipeline without effecting the valve door travel. It also provides access to the internals at the base of the valve in order to carry out maintenance or clear debris.

Jacking screw
Positioned to the side of the drain plug is a high tensile jacking screw facility which can be utilised to free the valve door should it become stuck in the closed position due to excessive tar deposits.

Orientation flexibility
The single door wedge gate design and the standard fitting of guides and rollers, makes the valve totally flexible in orientation so it can be used in either the vertical and horizontal positions in vertical and horizontal pipelines. This allows greater confidence and flexibility of the use of this valve regardless of position.

Single door wedge gate design
The single door design, when compared to more complex double door designs, offers a much simpler solution to valve obturation requiring less maintenance to ensure valve sealability.

Short face to face
The single door design is much lighter than double door designs and the shorter face to face dimension is advantageous especially for retrofitting into existing pipework.

INVESTORS IN PEOPLE

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E: anha@avkuk.co.uk
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