BELIMO

Retrofit at The British Library using Belimo Linear Valve Actuators

Investment in a better climate

The British Library is the national library of the United Kingdom and one of the world's greatest libraries serving business and industry, researchers, academics and students, in the UK and worldwide. It is situated between Kings Cross and Euston Stations on the Euston Road in London.

Optimum conditions for 12 million books

The library stores 12 million books on 290 km of shelving over the four levels of basement that descend 23 metres below ground. The basements are provided with advanced systems for protection from fire and water. The sophisticated air conditioning and filtration systems provide optimum conditions for preservation.

At the centre of the British Library stands the Kings Library, the 60,000 volume collection of King George III (1738–1820) which was given to the nation by his son King George IV in 1823. The extremely valuable collection is housed in it's own specially constructed six storey bronze and glass tower.

The public exhibition areas house a collection of over 200 of the most famous items at the Library including the Magna Carta and the Lindisfarne Gospels.

Books required by readers are drawn from the storage basements to the reader areas by means of an automated request, retrieval and delivery system. This system ensures that 90% of books requested arrive within 30 minutes.

As part of a routine programme of preventative maintenance at the British Library, Marsh Systems Limited has replaced the original Satchwell Linear Valve actuators with Belimo Linear Valve Actuators. This was made possible with the use of the Belimo Retrofit range of valve linkage kits.

Many of the books stored within the British Library are irreplaceable. The climate within the building is closely controlled to provide optimum conditions for preservation. This climate relies on the effective operation of the Trend Building Control System. The failure of a final control device, such as an actuator would have an effect on the stability of this climate.

Preventative maintenance ensures that the plant is working as intended. Breakdowns are reduced and the high costs of emergency maintenance are avoided. The contractor for the retrofit project, Marsh Systems Limited, Gravesend UK, replaced 56 valve actuators during the last maintenance work. All were Satchwell «VZ» valves under 50 mm and they were replaced with Belimo products.

During the retrofit process it became apparent that around half of the valves were Satchwell badged items. The design of these valves differed from that of the normal Satchwell valves. Dimensions were taken and the valves were identified as being originally manufactured by Osby.

Belimo have a linkage for Osby valves in their retrofit range therefore making it possible to motorise both valve types with the same Belimo actuators.

All of the actuators installed were the Belimo «NV24-MFT» type. These are 24 V AC / DC, modulating actuators with multifunctional technology. The control parameters can be set on the actuator such as running time, operating range, direction of stroke and choice of closing point.

The impressive main portico entrance through which the four metre high statue of Isaac Newton can be seen. The statue was inspired by William Blake's famous image of Newton bending forward plotting, with dividers, the immensity of the universe.

Belimo retrofit range

Regardless of whether a few individual actuators are to be replaced or a complete system is to be refurbished – with Belimo linear actuators, a very small number of actuator types are sufficient to motorise an extremely broad variety of valve brands. This simplifies planning and procurement and cuts the cost of installation, operation and maintenance. Belimo provides a 5 year guarantee period on the entire retrofit range.

Free choice for greater efficiency
The Belimo linear actuator range comprises a wide selection of actuator types offering diverse functionalities in three rating classes (max. actuating force 2000 N). In addition to the established NRVDX and NV actuators for a maximum stroke of 5.5 mm or 20 mm respectively, the new AV...R actuator provides a solution for control valves with strokes of up to 50 mm.
Brushless electric motors ensure that there is a drop in current in the end position for the NV and AV actuators and ensure a 1:100 control resolution.This optimises current consumption for control operations and enables the new European directive 2002/91/EC concerning the efficiency of power for buildings to be implemented.

Ideal for all common control valves
Belimo retrofit kits with actuators and the matching linkages are available for valves of all leading brands, for example:

- Cazzaniga
- Danfoss
- Honeywell
- Hora
- Johnson
- MUT
- Osby
- Sauter
- Siemens
- Satchwell
- TAC

Linkages for control valves from other manufacturers are available on request.
The retrofit range also provides solutions for Butterfly valves and the classic mixing valves for heating installations from a variety of manufacturers.

Easy selection of Belimo actuators
Leaflets for the entire retrofit range showing quick selection charts are available by contacting Belimo directly.
The Belimo web site features a menu-guided selection table to help you choose the optimum actuator type and matching linkages quickly and easily.
This table is regularly updated and can be viewed at **www.belimo.ch/retrofit**

Easy to handle

The linkages used within the British Library for mounting the Belimo actuators were the Belimo UNV-023 (Satchwell) and the UNV-025 (Osby). The simple fitting concept shown below is the same for all of the Belimo linkages.

Step 1
The actuator to be replaced is removed and the valve body is wiped free of any debris.

Step 2
The brass collar is screwed onto the neck of the valve and locked.
The stem adaptor is screwed onto the valve stem and locked at the correct height with the pre-existing locknut.

Step 3
The actuator is placed on the valve neck adapter and bolted to it giving a friction locked connection.
The stem adapter is secured to the valve stem by means of the stem coupling.
The actuator cover is removed and DIP switches are set, if necessary.

Step 4
The actuator is connected to the power supply and the automatic stroke adaption process begins.
The twin-colour LED status indicator turns solid green to show that the procedure has been successfully completed.
The result is a happy customer!

Our sincere thanks to The British Library, Marsh Systems Limited and EMCOR Facilities Services for their help and co-operation in compiling this Retrofit report.

For more detailed information, please contact your Belimo representative:

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