



Limitorque FR Shells Removable Intumescent Fireproof Coatings

Simple Fireproof Protection, Quickly!



Experience In Motion



Features

FR Shells, manufactured by Mov Limited, offer an intumescent fireproof coating in a removable design. The construction is reinforced with wire to enhance its performance and protection of the valve actuator for at least 30 minutes against a hydrocarbon fire. Based on this design capability, the valve actuator will not require being sent to the OEM for replacement coatings in the event of a fire. The intumescent coating can be installed on-site for existing actuators without any modification. The design of the intumescent coating comes in sectional forms and is assembled/secured with external fixing screws supplied with the FR Shells. The FR Shells are protected against harmful UV rays with an approved paint.

Certificate

- UL1709 hydrocarbon fire
- Jet Fire as per ISO 22899-1

Ambient temperature

- -30° C (-22°F) to +85°C (185°F)
- -45°C (-49°F) to +150°C (302°F) (option)

Quality system

- ISO 9001:2008
- ISO 14001:2004

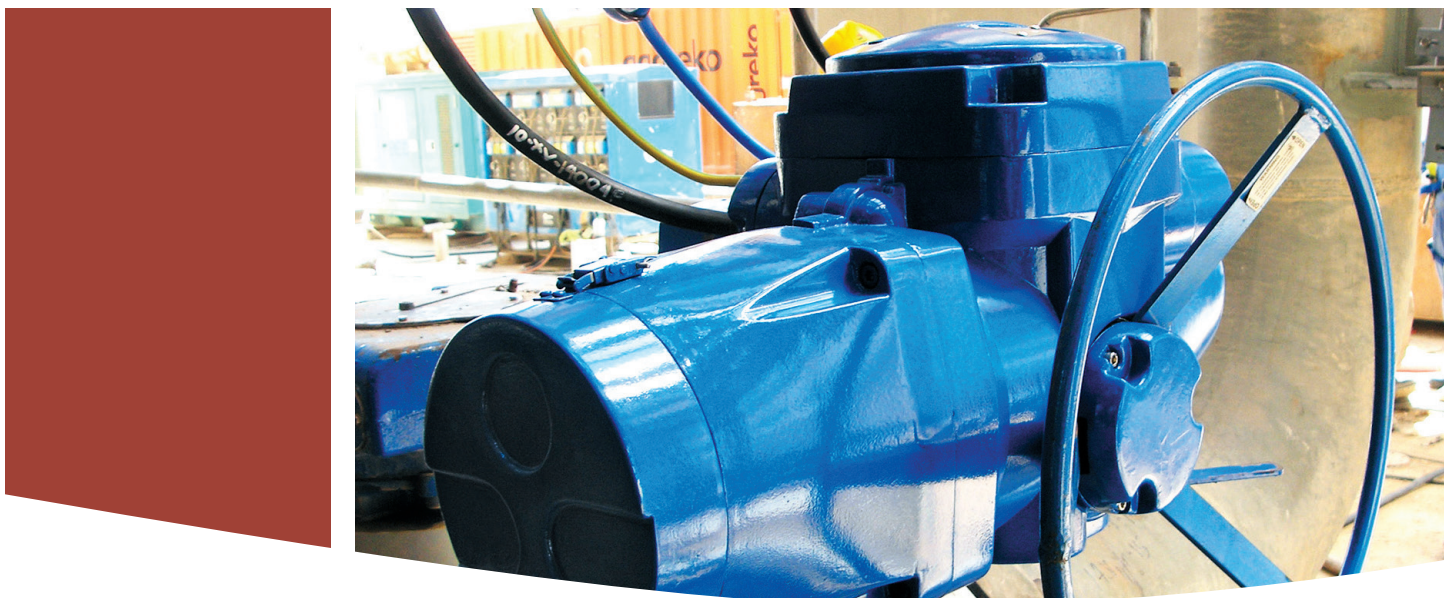
Material

- Intumescent Epoxy

Thickness

- Average 15 mm





Performance Properties

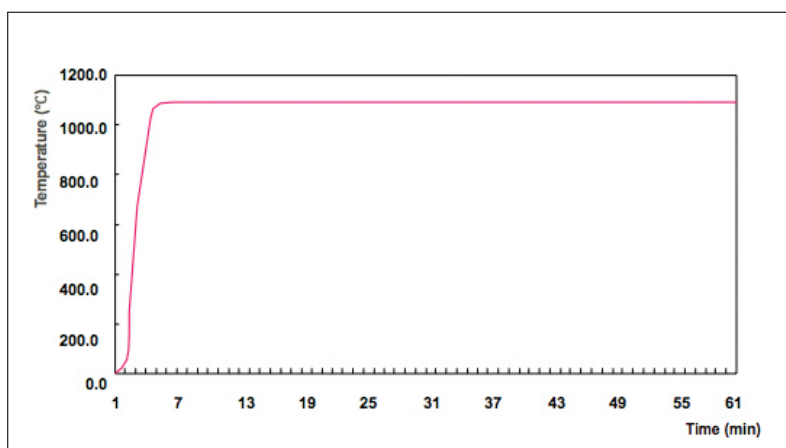
The intumescent coating is in a solid state until contact is made with fire. Once contact is made, the intumescent coating (coating surface) is converted into a highly viscous liquid. The intumescent coating then reacts, combining combustion of the epoxy and gas liberation. This results in an expansion up to eight times the initial thickness and forms a low-density, carbonaceous insulation char. The layer of char absorbs most of the heat generated by the fire, thus protecting the actuator and its internal parts from exposure to the extreme temperatures of a hydrocarbon fire.

Test Criteria

UL1709 is a rapid rise fire test of protection materials. The time-temperature fire curve of UL1709 represents a severe hydrocarbon fire, which can possibly occur in refinery and petrochemical plants. The valve actuator should maintain operation and full functionality for 30 minutes after exposure to a UL1709 hydrocarbon fire. The UL1709 time-temperature fire curve is shown below.

Applications

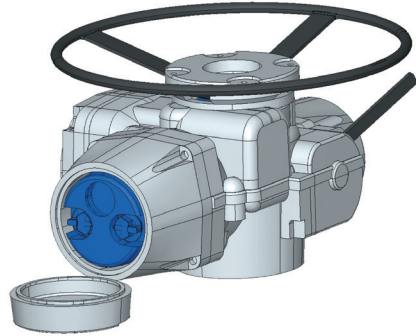
- Electric actuators
- Control station cabinets



Features

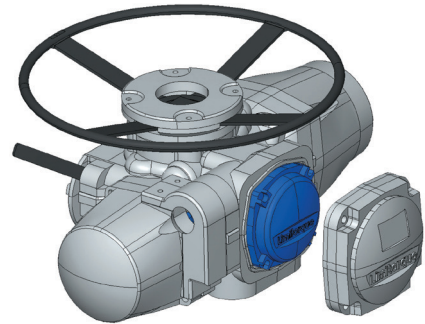
Control Knobs/LED Display

A hinged access door is provided for easy access to pushbutton switches and indication lamps. During normal operation, the operator can access the pushbutton by simply opening the access door.



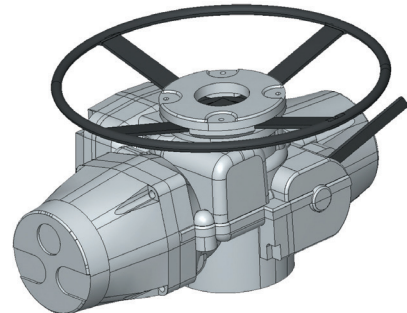
Terminal Block

A separate fireproofing cover is assembled on the terminal block side for easy access to the terminal block. It is not necessary to remove all intumescent coating parts during the connection of power, including the installation of control cables.



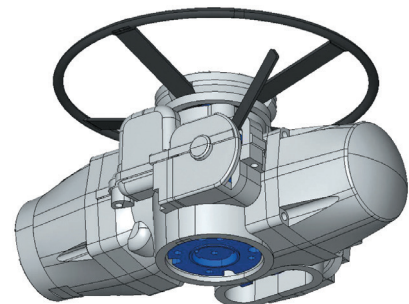
Manual Handwheel

A manual handwheel and declutch lever are located on the exterior of the intumescent coating. This allows the operator to quickly operate the actuator by hand during emergency conditions.



Thrust Base

A thrust base cover is available when required. No additional work is required during assembly of actuator to valve body.



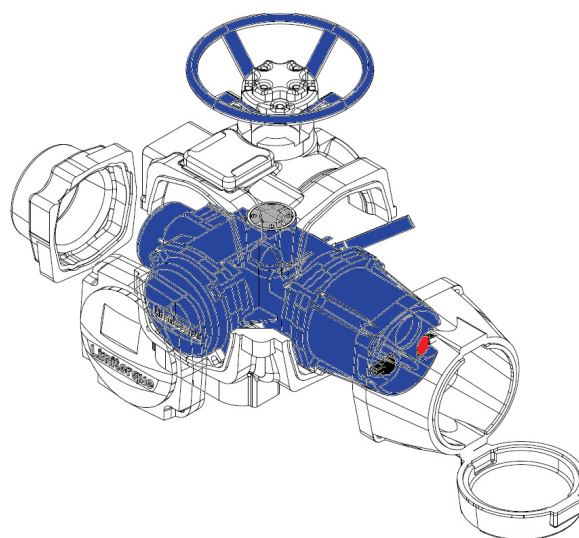
Paint

A primer coat is applied prior to final painting on the intumescent coating. In order to prevent chemical reaction, only approved paints are applied on the intumescent coating. Factory standard final color is OSHA Safety Purple.



Installation

The intumescent coating is composed of various parts, including: control cover, motor cover and terminal cover. They are assembled together with an SS304 fixing screw. To prevent any damages, the intumescent coatings are separately packed and are recommended to be assembled onto the actuators once installed at the site.



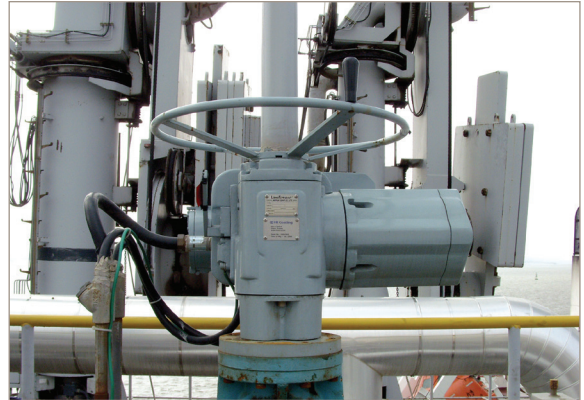
Lifetime

No major maintenance is required for the intumescent coatings. Over time, the surface paint may discolor. If this occurs, the factory recommends the use of the approved paint for repainting.



Advantages

- Lightweight design
- Can be installed on existing actuator
- No modification is required of the actuator.
- Easy installation and removal
- No special tools are required.
- Installation space is not required.
- Can be re-used in the event of actuator replacement
- If a part fails (e.g., motor), re-coating is not required.
- Excellent finishes in decorative grade
- Separate storing of intumescent coating is possible, against damage during installation of valve/actuator.



Certifications



Certificate no: SEO1050136/1

Rapid Rising Fire Test according to UL1709 Fire Curve

Page 1 of 1

Project: Fire Proofing - FR Coating for Valve Actuator

Client: MOV Limited

Office: Seoul

Clients Order Number: -

Date: 11 March 2010

Order Status: Complete

Inspection Dates

First: 12 February 2010

Final: 18 February 2010

This certificate is issued to Messrs. MOV Limited to certify that the undersigned Surveyor to this Society did attend at Korea Institute of Construction Technology, Ilsan laboratory (here in after KICT) on the above date for the purpose of inspecting and witnessing rapid rising fire test for the undernoted Valve Actuator according to UL1709.

Particulars

1. Electric Actuator : LIMITORQUE Model MX-10
Power 460VAC, 3Ph, 60Hz
Enclosure Type Ex-proof
2. FR Coating Material : International Paint (Korea) Ltd.
CHARTEK 7 Medium Grey Part A 302120 + Part B 302130
Coated thickness - average 15mm

Description of fire test

The above items had been set up on the base of vertical furnace at the KICT and an on-off switch box had been connected by extension electrical cables to the Actuator in order to check operation during the fire test.

During the test, time-temperature curve had been witnessed to be complied with UL1709 requirement.

The performance tests for Actuator had been witnessed at 6 minutes, 13 minutes, 20 minutes and thereafter at every 1 minute until malfunction had occurred to 60 minutes from starting. Malfunction of Valve Actuator had not occurred until the end of testing.

KICT's Test Certificate (200912091-1) was reviewed and endorsed where appropriate.

Note : This is not a general quality certificate of the above subject, but an actual factual report.



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