

OF MATERIAL INTEREST

Urethanes smooth stadium roof operation

Enron Field, the new baseball stadium in Houston, Texas, features a retractable roof and a natural grass playing field. A unique suspension system reportedly enables the roof to operate flawlessly.

The roof travel mechanism was designed by Uni-Systems Inc., Minneapolis, Minn. It features independent suspensions for each of the 142 wheels that carry the three huge roof sections. The suspension springs compress a small amount when the wheel meets a high spot on the rail. Uni-Systems didn't think that metal springs would be able to meet the 25-year working life criterion, so a system based on a urethane elastomer was chosen.

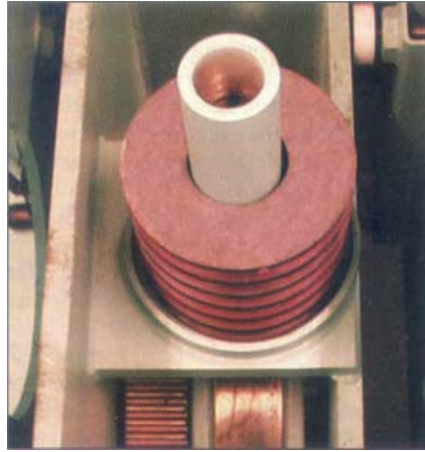
Development work was conducted by Uni-Systems and Kastalon Polyurethane Products, Alsip, Ill. Kastalon already was involved in the project in designing a bumper stop assembly for the roof system. The team selected Adiprene urethane prepolymers from Uniroyal Chemical, a Crompton business, Middlebury, Conn.

The patented cylindrical springs consist of alternating layers of steel and urethane around a central shaft. The laminated assemblies are only 20 cm (8 in.) in diameter and 23 cm (9 in.) tall, yet they support a normal load of 555 kN (125,000 lbf), with peaks to 1.4 MN (325,000 lbf).

Other applications: Adiprene urethane also is used in the stadium's roof tie-down system. Despite its great weight, the roof must still be tied down during high wind or hurricane conditions. Use of urethane enables the tie-down springs to maintain constant tension during the lift/drop cycles experienced during high winds.

For more information about urethane applications, contact Bruce DeMent, Kastalon Inc.; tel: 708/389-2210; fax: 708/389-0432; Web: www.kastalon.com.

For more information about Adiprene castable urethane prepolymers, contact Uniroyal Chemical Customer Service; tel: 800/243-3027; fax: 203/573-3461; Web: www.cromptoncorp.com.



Partial assembly of the wheel suspension system used at Houston's Enron Field. The cylindrical spring consists of alternating layers of steel and urethane.



Other urethane applications at Enron Field developed by Uni-Systems and Kastalon include over-travel bumpers, right, and hurricane tie-down springs, left.