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Superior Connection for Vertical Scrubbers Found in Automated Car Wash Systems

Climax Keyless Rigid Moment Couplings provide a superior connection solution for vertical scrubbers, eliminating problems associated with traditional keyed methods.

For Rotating Applications:

- Keys, keyways, & set screws are prone to shaft damage & fretting corrosion
- Splines, prone to fretting corrosion & require expensive machining
- Shrink or press fits are difficult to install & remove
- QD/Taperlock bushings use keyways where wallowing occurs causing fretting & backlash
- Hex nut keyless bushings are not self-locking & dynamic loading can loosen the connection

Cloth-friction wash systems, popular in automated car wash facilities, incorporate the use of soft cloths or brushes. As the vehicle moves through the car wash tunnel, these soft cloths or brushes move around the exterior surface of the vehicle, eliminating unwanted dirt and debris.

This cloth-friction wash system incorporates design features where large vertical mechanisms called scrubbers have multiple cloth strips attached to them. These scrubbers rotate at a very high speed, spinning the cloth strips as they encounter the sides and top of the vehicle while it moves past the scrubbers. The cloths are soft, but since they spin at a high rate of speed, they have a whipping effect on the vehicle as it passes through the wash system.

Traditional methods used to mount these large vertical scrubbers to the shaft often incorporate either a flexible coupling or require a keyed connection. Although flexible couplings can be useful on misaligned shafts, they require replacement of wear components and tend to have higher associated costs. Relying on keyed connections for this application can lead to backlash, wallowing, and fretting corrosion. Utilizing either of these methods can result in reports of damage to vehicles due to the complete failure of the vertical brush connection point. These failures can cause extensive downtime.

Using a Climax Keyless Rigid Moment Coupling provides a 360° contact mechanical interference fit, eliminating backlash associated with keyed connections. By removing the shaft keyway and associated notch factor, these keyless couplings allow for a shaft that is 30% stronger. The use of a KLD ensures no axial movement occurs during installation, eliminates problems associated with shock loading, and resists corrosion due to high contact pressure.

When maintenance is required, Climax KLDs are field serviceable and can be removed and reinstalled using simple hand tools, improving the profitability of the car wash. Climax engineers can engineer custom designs, including stainless steel, and offer various plating options for corrosive environments. Contact us to learn more about how we can provide a quality-engineered shaft locking solution.