

Pumping Gas

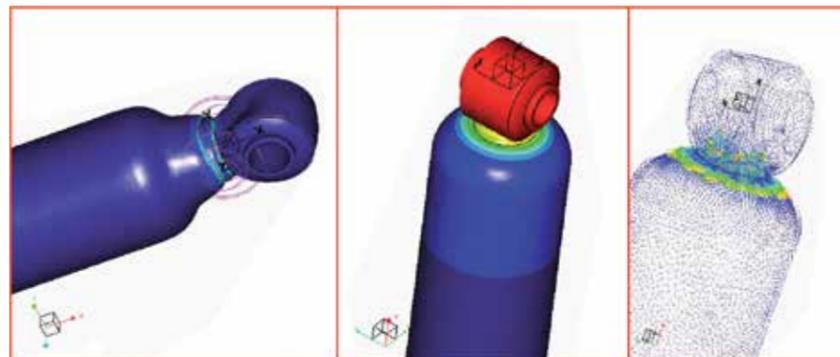
TO COMBAT THE ISSUES THAT COME FROM OVERHEATING SHOCK ABSORBERS, HEAVY-DUTY EXPERT **POWERDOWN** HAS RESEARCHED AND DEVELOPED A UNIT SPECIFICALLY FOR AUSTRALIAN TRAILERS THAT USES LOW-PRESSURE GAS TECHNOLOGY.



Shock absorbers that have worn out due to excessive heat build-up inside the unit cause the majority of tyre wear on air suspended trailers. When a shock absorber overheats, the oil inside the unit loses viscosity, affecting the ability of the shock absorber to control the trailer. Powerdown describes this condition as 'shock absorber fading', an issue that can cause patchy tyre wear, loss of control and unwanted load movement, resulting in increased driver fatigue and operational costs.

To help avoid shock absorber fading, Powerdown's team of engineers have developed a new, nitrogen gas powered shock absorber. "The new gas injection process provides greater cooling properties inside the shock absorber, allowing the shock to operate cooler for longer and resist a loss of dampening performance," explains Powerdown General Manager, Mathew Gatgens. Mathew adds that gas shock absorbers are already largely used on cars and small

commercial vehicle applications, but are not widely deployed on heavy-duty applications. "Previous attempts of designing gas shock absorbers for trailers had difficulty keeping the high pressure gas inside the component," says Mathew. "Our engineering team solved this issue with a newly designed, hard wearing seal, and the use of a lower-pressure, nitrogen gas." The low pressure of nitrogen gas means it can avoid excessive pressure build up on the main rod seal inside the shock absorber, giving it greater longevity over higher-pressure gases. "The research and development of the gas technology is just one example of how Powerdown is constantly striving to improve our components, to in turn improve our customers' operations," says Mathew. With over 30 years of experience in building shock absorbers specifically for long distance applications and rough roads that Australian fleet operators encounter on a daily basis, Powerdown put its considerable knowledge to use during the two-year design process of



Computer images from a shock-absorber stress test

the gas shock absorber. "One thing that stands out on the Powerdown Supershock is the considerable weight of the unit," says Mathew. "No compromises were made when designing the shock absorber. It has a 2.5 mm thick steel pressure tube and 2.0 mm thick body that not only provides better protection

from improved, speed-sensing disc valving, which adapts quicker to different road conditions. This calibration, complemented with a newly developed oil, greatly improves wind stability, body roll through cornering and control through dips and potholes." Potholes, steep ascents and descents and travelling over gutters are all road obstacles

essential for when the shock absorbers are used as the primary suspension travel limiter or when the trailer is used in conditions where it reaches its maximum travel regularly. The improvements on the components of the shock absorbers have all been designed to deliver Powerdown customers' with a product that will reduce the issue of shock absorber fading. Mathew adds that the components are currently out on trial with several fleets along the east coast. "They've endured over one million rotations on the dynamometer with no problem, with the gas ensuring the oil stays cooler for longer," he states. "We'll be launching the new Supershock trailer shock absorber range at the Brisbane Truck Show in May and we're excited to show the industry the power of Powerdown low pressure gas technology."

“ This calibration, complemented with newly developed oil, greatly improves wind stability, body roll through cornering and control through dips and potholes. ”

from stone damage but goes a long way to increasing the overall tensile strength of the shock absorber to cope with the higher dampening force requirements in Australia." Mathew adds that the Powerdown engineering team also took into account the fact that trailers travelling over large distances will often encounter diverse types of environments. "The new gas units benefit

that can cause a shock absorber to reach the end of its extended travel. "A hydraulic stop was incorporated in the design to avoid metal on metal contact within the shock when it reaches full extension. It acts as a cushion of oil that controls and slows the suspension to reach its full travel," Mathew explains – adding that the hydraulic stop is

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