MGM Brakes
A Division of Indian Head Industries, Inc.

MGM Brakes Addresses Ozone Impacted Environments with New, Coated Diaphragm

Europe consists of 51 countries where over 450 million people live. Since the United Kingdom left the European Union at the beginning of 2020, Germany, France, Italy and Spain are now, by far, the biggest countries in terms of population.

With such a large population in Europe, keeping public transportation operating efficiently is essential. Local governments subsidize their city transit systems to motivate its citizens to use public transport frequently. Hourly parking in large cities may cost $5 USD and a gallon of petrol cost approximately $7 USD. For this reason an efficient public transport system is vital for a large city to be accessible for its citizens.

Brake utilization is significant on a city bus application, as buses have more than 4 stops per mile. Each time the doors are opened for entering/exiting passengers, the service chamber side of the brake actuator is activated. Inner city bus brake actuators are applied another 30-40 times every mile, and is higher during rush hour. Therefore, air disc piston brake actuators in a city bus application need to be premium quality, perform efficiently, effectively, and are extremely durable. This is the reason why double diaphragm actuators or value brand piston brake actuators are not mounted on European city buses.

Due to the size, geographical location, the weather, and many passenger cars operating in them, cities like Paris, Madrid and Rome are suffering high levels of ozone. This challenging environment seems to significantly reduce the service life of the actuator service diaphragms. As a result, instant, unpredicted and unwanted braking during operation might occur in a vehicle carrying many passengers. Municipal fleet-owners routinely, as a preventative measure, replace the brake actuators to stop this dangerous situation from occurring. This generates extra costs and additional maintenance in off peak hours, as most vehicles are in operation during the day. Therefore, brakes are being changed prematurely before failure or a full life cycle.

MGM Brakes recently developed a unique coated diaphragm that is significantly more resistant to higher levels of ozone exposure than the standard rubber diaphragm. This diaphragm was developed for use with the well proven and reliable ‘MJB’ piston model brake actuator, to meet challenging

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customer requirements regarding brake life in a severe demanding city bus application. This new coated diaphragm ensures the extended life for heavy duty applications in ozone impacted environments. In close cooperation with a leading OEM bus manufacturer, MGM validated this solution by performing several in-house tests along with specialized independent external lab testing. Additional results show that this new diaphragm meets all the required brake force output levels essential for safe vehicle operation. Its' design enhances ozone resistance while not affecting the performance of the brake actuator. The new version of the 'MJB' piston model brake actuator will start to be offered on European inner city buses operating where the ozone levels are a topic of concern.

This new, coated diaphragm will also be available for use in other applications, including municipal applications such as waste and recycling to combat the issue of ozone degradation and recommended for customers with interest in an ozone resistant disc brake.

The introduction of this new coated diaphragm illustrates MGM's ingenuity and ability to find unique solutions to resolve difficult problems for commercial vehicle fleets and manufacturers.