



# A suitable case for treatment

**BorgWarner**

## Automotive transfer cases filled by DOPAG metering system



When Dan Wheldon accepted the BorgWarner driver's championship trophy from BorgWarner chairman and CEO Tim Manganello in May 2005, he became the first Englishman to do so after winning the world famous Indianapolis 500 race, since Graham Hill in 1966.

In 1935, The Borg-Warner Automotive Company specially commissioned the solid silver trophy, at a cost of \$10,000. It was subsequently declared the annual prize for Indianapolis 500 victors. Today, the gleaming trophy is estimated to be worth over \$1,000,000.

BorgWarner was however, founded in 1928 and ever since, it has been synonymous with pioneering innovation in the automotive industry.

Today, BorgWarner is a trusted supplier to virtually every automotive transmission manufacturer in the world and a leading global designer and producer of torque distribution and management systems, including rear wheel four wheel drive transfer cases.

At their TorqTransfer Systems facility at Port Talbot in South Wales, BorgWarner has recently commissioned an automated assembly line to produce transfer cases for a newly launched SUV.

A crucial part of the process involves automatically metering 800 ml of transmission fluid into each transfer case.

Because the process is entirely automatic, it is essential that the volume of fluid metered into each case be automatically verified before the case moves to the next station.

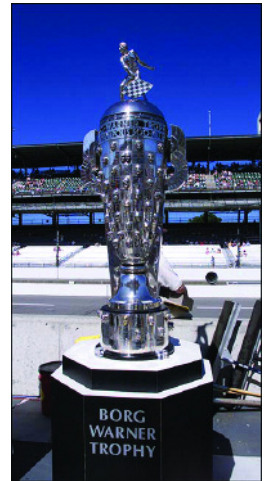
Fortunately, DOPAG's LECTRO-FLO electronic metering system was designed with exactly this requirement in mind, making use of electronically controlled gear type flowmeter technology.

The flowmeter, which is controlled by a DOPAG MR20 computer, ensures that the exact volume of fluid is dispensed into the case on every occasion.

Should however, an error occur in the metered volume that falls outside the acceptable tolerance programmed into the MR20 computer, caused for

instance by a ruptured hose or a line blockage, then the system would immediately inform the master controller which would alarm and take the appropriate actions to isolate the case.

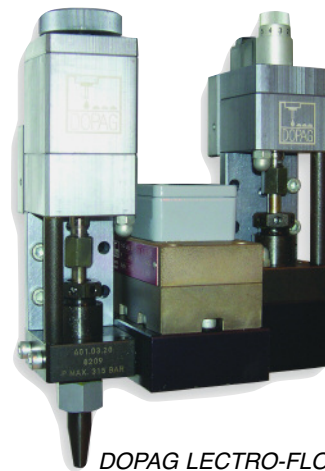
The fluid is fed to the LECTRO-FLO system by an integrated DOPAG transfer pump and fluid pressure regulator.



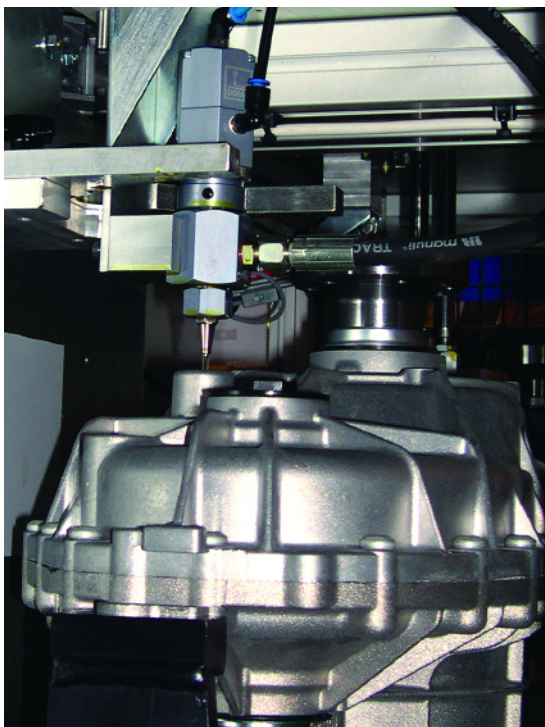
In use, as each case arrives at the filling station, a DOPAG "SNUFFER" valve is automatically positioned above the filling hole, which then opens to allow the metered volume to be dispensed into the case.

The "SNUFFER" valve is particularly useful in automated applications such as this, since when dispensing has been completed, it creates a vacuum in the dispensing nozzle that has the effect of making certain that fluid does not drip from the nozzle onto the outside of the case.

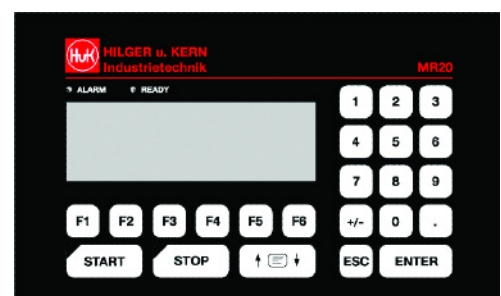
The DOPAG LECTRO-FLO electronic metering system has proved to be the ideal solution for filling transfer cases with transmission fluid. Indeed, it really has proved to be a suitable case for treatment!



DOPAG LECTRO-FLO module



DOPAG "Snuffer" valve dispensing fluid into the transfer case



MR20 Controller