

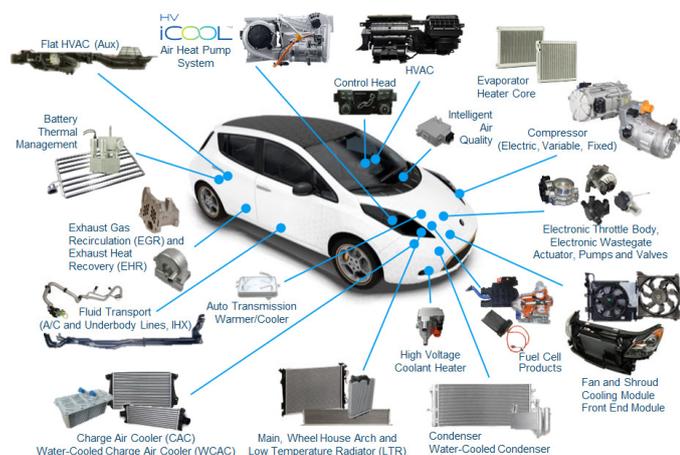
# ESG case study: Hanon Systems - positioned to benefit society

The RBC Emerging Markets Equity team

When considering Environmental, Social and Corporate Governance (ESG) in our investment process we do not merely focus on the social, corporate governance and environmental aspect of current practices, we also take into consideration how a company extends its lifespan by investing in products that will make a difference to society in the future. In other words, how sustainable, innovative and cutting edge are a company's products?

Korea's Hanon Systems, we believe, is a company which meets those criteria.

Established in 1986 as Halla Climate Control, a joint venture between Ford Motor and Korea's Mando Machinery Corp., the company started producing radiators for Hyundai Motor Group. Since its establishment, Hanon has dedicated its efforts to the development and production of high-quality climate control systems for vehicles. The company's relentless efforts in the research and development (R&D) of innovative proprietary technology is the driving force behind its technological excellence. Hanon dedicates over 4%<sup>1</sup> of its sales revenue to R&D per annum and Hanon's four global R&D centres, based in North America, Germany, the Czech Republic and South Korea, have continued to deliver cutting-edge automotive climate control systems. Today Hanon Systems is the third-largest producer of climate control systems globally with a 13%<sup>2</sup> market share, but is effectively one of only two global suppliers who provide complete automotive thermal systems solutions.



Source: Hanon Systems

As the company's own website explains, in a world where the fight against climate change and global warming remains a top priority,

the automotive industry plays a key role in providing innovation and technology to help reduce the emissions, pollutants and carbon footprints of vehicles.

At Hanon Systems, eco-friendly and efficient products are developed that encourage and enable automotive manufacturers to create vehicles which combine long-term sustainability and value. Hybrid, electric and fuel cell vehicles are three areas that are driving the low-impact agenda and helping to reduce the world's carbon footprint. Hanon Systems has created cutting-edge components and vehicle systems for a market that demands 'greener' vehicles. In an effort to reduce the use of environmentally unfriendly refrigerants in air conditioning (AC) units, Hanon Systems has developed breakthrough technology in alternative refrigerant systems which is helping to reduce further the negative environmental impact of vehicles.



Source: Hanon Systems

IHS Markit data shows that, globally, the top four climate control manufacturers have 65%<sup>2</sup> of the entire market and of those, only two that can provide the full spectrum of eco-friendly climate control systems (EV compressors, battery, thermal energy management systems and heat pumps). Hanon Systems is one of those top two and is set apart from peers by its thermal management systems. European automotive component manufacturers have been focused on diesel vehicles and were very late in getting exposure to electric vehicles (EV) and were weak in hybrid, electric or hydrogen vehicles.

Heating, ventilation and air conditioning (HVAC) climate control systems are very important for electric vehicles. This is because the car's power train consumes 60% of the lithium-ion battery (LIB) and the AC consumes the rest. So in an eco-friendly era the AC

system is terribly important. Emission standards will soon measure fuel consumption with the air conditioning unit switched on. This will not only increase fuel consumption but, more importantly for electric vehicles, AC usage will impact the driving range (the length of time the car will run on a fully charged battery). Hanon is paving the way in the use of heat pump technology in electric vehicles, which can extend the driving range of an EV by 30%-50%. This is especially relevant in winter. The heating system in a car with an internal combustion engine is a by-product of the engine and costs nothing, but in electric vehicles there is no combustion, so additional energy is needed to produce heat. Hanon's heat pump captures the by-product from the battery motors, electronics and compressors themselves and uses this energy to heat the car. This, in turn, extends the driving range by 30%-50%.

Given the technological challenges involved in creating climate control systems, it is therefore unsurprising that HVAC has been

ranked ahead of anti-lock braking systems (ABS), aerodynamics and diesel engines as the most innovative technology in automotive history.

Hanon's vision of being a global leader in innovative thermal and energy management solutions drives the company culture. This culture permeates throughout the whole organisation and can be summed up by a message to the investment community from CEO In Young Lee on Hanon's company website:

Being a global company no longer refers only to a company's geographic footprint. Instead, it highlights the responsibility of a company to be global in outlook and to incorporate a more holistic approach in its business conduct, operations and decisions. A company's stakeholders are not just its customers and employees, and a company's focus should never be solely based on profits.

## ABOUT THE AUTHOR

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Veronique is a Portfolio Manager in the Emerging Markets Equity team in London. Veronique began her investment career in 2000 and joined RBC Global Asset Management in 2015. Prior to joining RBC Global Asset Management, Veronique was at CLSA Asia Pacific Markets where she was responsible for Asian ex-Japan equities covering geopolitical, macro economic and fundamental analysis of the region for 15 years. Veronique grew up in Hong Kong, and obtained a BSc from the University of Surrey in 1998 in Economics and German, and an MSc in Finance from Cass Business School, London.



Sources: <sup>1</sup>Hanon Systems Report & Accounts 2016; <sup>2</sup>IHS Markit Data and RBC Global Asset Management as at November 2017.

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