

## SMC Expert Article – Sustainability

### Sustainable becomes attainable with SMC

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The ethos of corporate responsibility, sometimes called corporate social responsibility (CSR) or business sustainability, begins with recognising that the activities of your business impact on society, the environment and the economy, as well as your employees. It makes good sense for your company to operate sustainably as the benefits extend from enhanced brand reputation through to better staff engagement. For sustainability managers at engineering companies, SMC drives sustainable development and delivers a highly positive impact through various CO<sub>2</sub> emissions reduction initiatives. These efforts provide a major contribution towards attaining the ISO 14001 environmental management standard, and help any companies reporting their carbon reduction journey based on Scope 1, 2 and 3 emissions, as set out in the GHG (Greenhouse Gas) Protocol.

Here at SMC – an ISO 14001 accredited company since 1999 – we take our CSR seriously in order to promote and support sustainability and, in turn, minimise any negative environmental impact. We're always looking to develop greener solutions offering CO<sub>2</sub> reductions and energy savings that contribute to lower Scope 1, 2 and 3 emissions. To provide a little explanation, Scope 1 covers the emissions that you make directly from running your machines and plant systems, for example. Scope 2 encompasses the emissions that you make indirectly, such as when the electricity you buy for running your machines and systems is being produced on your behalf. Scope 3 covers emissions from the organisations for which your company is responsible, up and down the supply chain. For example, from buying products from your suppliers, and from your products when your customers use them.

Some companies struggle to reduce Scope 1, 2 and 3 emissions. Initially, the improvements are easy, perhaps driven by a switch to green energy. As the CO<sub>2</sub> reduction programme advances, however, it becomes harder and harder to identify improvement initiatives. For this reason, our main pillar of sustainability at SMC is continuous improvement. This carefully structured pillar comprises three key areas: sustainable products, air-saving systems and sustainable manufacturing.

#### **Sustainable products – Scope 1**

Through assessments, we evaluate the environmental impact of our products in terms of resource savings (smaller, lighter), product longevity, energy savings, amount of packaging materials and waste disposal in order to develop products that support sustainability.

Creating sustainable products relies on factors such as topology optimisation, where our innovative design process realises more compact, lightweight products compared with existing solutions. The result: a large reduction in the amount of CO<sub>2</sub> emissions created during production.

In addition, our sustainable products contribute to energy savings and less CO<sub>2</sub> emissions during their lifecycle, achieving reductions of up to 75%.

Put simply, by using compact, lightweight products, SMC is helping customers to minimise the size and weight of devices and reduce their Scope 1 emissions. We offer sustainable air cylinders, solenoid valves, air filters and one-touch fittings. Further sustainable product innovations that contribute to lower Scope 1 emissions include chillers, which reduce energy consumption by up to 34%. Chillers are an efficient alternative to processes that traditionally employ boilers or furnaces operated by natural gas. In such applications, which include chocolate dosing or paint fluidisation for example, chillers achieve better temperature control but with the great advantage of full electrical operation to help minimise CO<sub>2</sub> emissions.

## **Air-saving systems – Scope 2**

SMC can help you to reduce energy consumption and cut your Scope 2 emissions, where the first step of this process is understanding the existing CO<sub>2</sub> emissions from your factory. Relatively few are aware that air equipment accounts for about 20% of all factory power consumption. Air blow is the main culprit, responsible for over 40% of all air consumption, with actuators responsible for 14% and vacuum 9%.

Improved air blow efficiency is achievable by selecting optimally sized piping. Similarly, we can help you to save air through device optimisation. SMC has a myriad of devices available that help to reduce air consumption in comparison with conventional alternatives, including impact blow guns (87% reduction), pulse blow valves (50%), vacuum units (93%), digital gap checkers (60%) and booster regulators (40%).

Another initiative is lowering factory operating pressure to 4 bar (from conventional 6 or 7 bar), thus reducing energy consumption by up to 28% without compromising pneumatic performance.

By allowing SMC to check on the status of your factory, we can provide equipment and facility improvement proposals, factory management training and access to a wide range of other useful services that help to lower your Scope 2 emissions.

## **Sustainable manufacturing – Scope 3**

SMC Corporation first achieved accreditation to ISO 14001 way back in December 1999, since when we've been promoting a programme of continuous improvement centred on environmental and energy-saving measures at our factories, including the use of solar panels.

Within our many business activities that help to drive down Scope 3 emissions, we target electricity consumption, which is the largest source of CO<sub>2</sub> emissions. Our energy-saving efforts in this area include the use of mechanisms that automatically shut off air sources during plant downtime, which has reduced the use of purge air by around 30%. We also utilise our own flow switches to monitor air flow rates within each factory to allow for early leak detection.

As a point of note, we keep track of any environmental burdens generated through the consumption of resources during the design, development and manufacturing of our products. By resources we mean materials, energy, chemical substances, water, packaging materials and paper.

## **Support for CO<sub>2</sub> reduction**

As well as contributing to lower Scope 1, 2 and 3 emissions as part of the GHG Protocol, our sustainable products and initiatives are already helping companies achieve ISO 14001. This standard has a much wider breadth that considers the entire environmental impact, such as waste streams like plastics, metals and oils. Here, SMC has several examples where our products are producing customer benefits, such as wireless fieldbus technology that avoids wiring waste and optimised cylinder design that avoids aluminium waste. ISO 14001 also focuses on recovering energy from waste. Again, we have specific products for this application, where customers reuse spent compressed air before it becomes definitively wasted.

In short, SMC can provide a full range of support options for your CO<sub>2</sub> reduction programme, regardless of the methodology you chose to employ or the scale of the challenge ahead.

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