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TAPPING RUBBER NEWS FIRST

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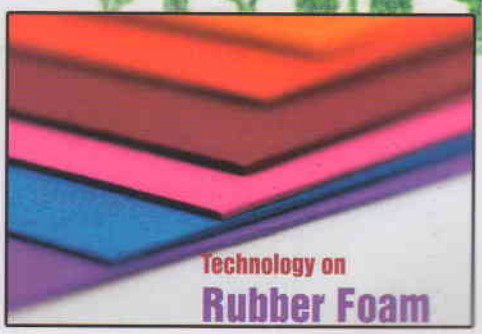
Carbon Footprint Navigator ECOS



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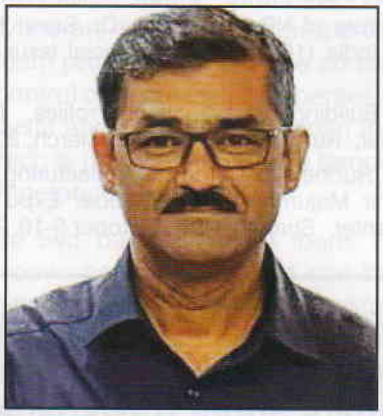


Rahul Wathodkar
Head - Sales and Marketing.

Rahul started working for Desma in 1997 after completing his electrical engineering and acquiring programming experience of Siemens S5 control system. In the beginning he worked as service engineer in Desma.

He understood the expectations of Indian moulders and took the lead in developing India specific control system for the Indian moulders. During the development of control system, Rahul was made responsible to lead the field service and spare part team. With successful introduction of indigenous controls for Desma machines. Rahul was given Responsibility to setup and lead electrical & software at Desma India, by 2006 Rahul was heading electrical and software department along with field service and spare parts at Desma India.

In 2006 he was deputed to China for setting up manufacturing facility for Desma machines in china. During his three years stay at Wuxi china, Desma Chinawas established to produced sigma series machines for Chinese market.

He resumed his responsibilities after returning to DESMA India in 2009 and shortly his team developed fully closed loop process control system DRC1020 subsequently this control system was upgraded with DRC 1030 control system, having fully touch panel and industry 4.0 compatibility.

With immense technical exposure to machine with advance knowledge and experience in Desma machine automation... hydraulic and controls... He is now working with Desma sales and marketing.

With our PCF Navigator ECOS, we want to give our customers a tool to show the numerous options for CO_2 reduction in the manufacturing of elastomer article.

It will be impossible in the foreseeable future to produce CO2 neutral elastomer articles since the base material alone carries a considerable CO_2 footprint. In fact, the elastomer compound contribution can range from 2 to over 10 kg of CO_2 per kilogram of compound depending on the source of data, type of compound, as well as the energy and logistics

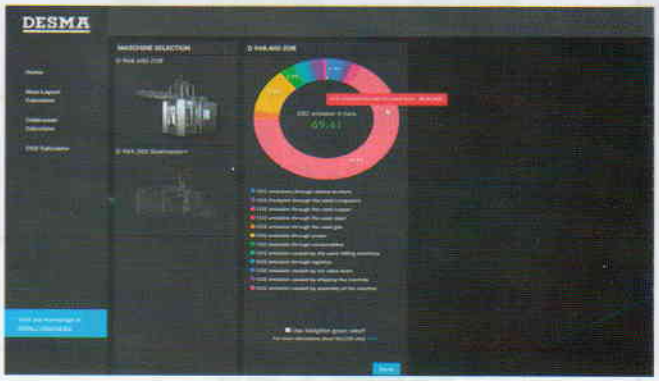
used in the compound manufacturing process. When considering the material portion of the CO_2 footprint in any elastomer article, one must keep in mind the factors of sprue waste and specific article scrap rates. In addition, a CO_2 footprint calculation for the manufacture of the injection moulding machine, cold runner, and mould must be taken into account. For a complete calculation, it also necessary to also include the important impact of logistics and supplier contributions.

What basic options are available for action?

When manufacturing or procuring injection moulding machines, a choice can be made between energy-saving servo technology, the use of steel produced with green energy, or, if necessary, the use of regenerative energies. To reduce primary energy consumption during the rubber injection process, we offer options such as DESMA EnergyControl+, DESMA Iso+ heating plates, and full perimeter mould insulation.

In addition, an ideal a positive effect can be achieved if the machines can be manufactured as close as possible to the actual place of use; this clearly reduces logistics related emissions.

Despite these potential actions, it is easy to see that the manufacture of the injection moulding machine, over a calculated service of 15 years, typically only has an impact of approximately 1% of the CO_2 footprint of a given rubber injection moulded article. Nevertheless, all such advantages must be considered to achieve a positive influence on the overall balance.



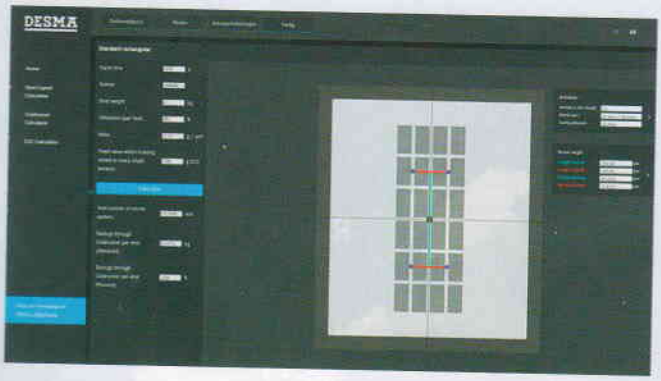
Example CO_2 Footprint for Desma 400Ton Machine with average equipment

With the help of the **DESMA PC Navigator Ecos,** customers can get a detailed overview of the factors that make up the CO_2 footprint of the individual moulded article. It also shows which measures can be taken to achieve improvements.

Through its use, the **DESMA PCF Navigator Ecos** contributes to the understanding of the interrelationship of all influencing factors in the moulded rubber article CO_2 footprint. It is important to mention that the calculation result is as accurate approximation as possible, since the consumption values used for the calculation are averages and the upstream or downstream processes depend on the recording accuracy. Nevertheless, the **PCF Navigator** Ecos makes it is possible to take a quick decision on the optimum production process for the given elastomer article and to gain a basic understanding of the resulting article CO_2 footprint range.

Our newly developed PC Navigator Ecos includes a database with suggested values for a wide variety of elastomer types, plus we offer the ability to customize the calculation via additional input fields for individual data entry.

To check the CO_2 impact of using cold runner technology, we have fully integrated our previously developed **DESMA CoolApp** into the **PC Navigator Ecos** as well. This allows customers to directly consider material savings from the cold runner process as realistically as possible by configuring the cavity layout and cold runner design concept. Of course, when using a cold runner, we factor in the additional energy consumption due to both cold runner manufacture and operation. Furthermore, any additional cycle time impact from the cold runner use can also be incorporated manually.

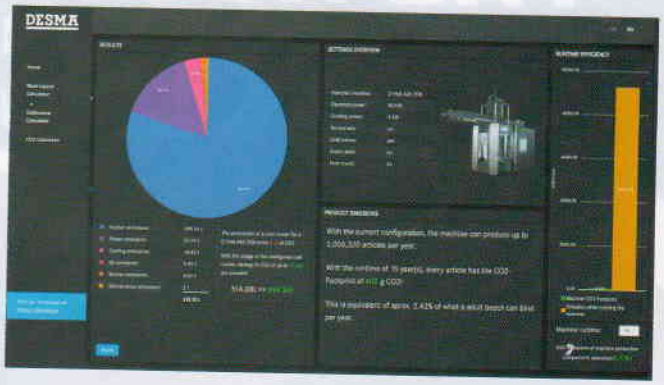


Selection window nest layout and selected number of nozzles with saving calculations

Finally, we have also provided the option for customers to include upstream and downstream process steps, along with their CO_2 impact through additional manual data entry fields.

In consideration of climate responsibility, end customers are increasingly demanding information on the CO2 footprint of purchased items. As a result, many consumer products manufacturers have implemented internal targets to achieve CO_2 neutral end products.

To achieve such goals, manufacturers can take actions like neutralizing emissions through the purchase of certificates ("Carbon Credits") or through measures with positive emissions effects such as the use of green energy. The fact is: the emission impact (CO_2 footprint) of individual components, like elastomer articles, will be a very important decision factor for supplier selection in the near future.



The DESMA **PC Navigator Ecos** will soon be available to registered customers via the DESMA **Ecosystem**. In parallel we continue to add more machine types to the system to increase functionality. We are also already working with a neutral institution to confirm our assumptions and calculations, from this we will then present a corresponding stamp of quality for the **DESMA PCF Navigator Ecos.**

- Rahul Wathodkar
Head - Sales and Marketing.
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