MANULI HYDRAULICS - PUTTING THE EARTH FIRST

The manufacture and design of hydraulic connectors is not typically associated with sustainability and environmental responsibility. The nature of the products has traditionally made them reliant on technologies and materials that are not generally considered to be environmentally friendly, whilst end-of-life disposal of the products has always been a contentious issue.

As one of the leading voices in the development of hydraulic connectors technology, Manuli Hydraulics is stepping-up and taking on the established industrial norms by the implementation of their new **Earth-First Project** initiative.

The *Earth-First Project* is a global sustainability initiative across the whole Manuli Hydraulics organisation, aimed at actively minimising the impact of their operations on the environment, and ensuring that, wherever possible, the most socially-conscious actions are taken.

One of the major focus areas of the *Earth-First Project* is the development of technologies and materials which allow Manuli Hydraulics products to be manufactured in an environmentally-conscious way, and subsequently disposed-of in a manner that does not result in landfill or the introduction of harmful gases or chemicals into the environment.

The senior management at Manuli have recently approved a product development plan that is set to revolutionise the hydraulic connectors industry over the course of the coming months and years. Significant funding and product design resource has been allocated to ensure that future Manuli Hydraulics products can be manufactured, used and disposed-of, in the most sustainable and environmentally-responsible manner possible.

The *Earth-First Project* logo on existing and future Manuli Hydraulics products clearly identifies products developed under this initiative, allowing users to be confident that they are matching their need for high-performance hydraulic connectors with their social and environmental responsibilities.

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GAIA - THE FIRST 100% RECYCLABLE HYDRAULIC HOSE

The first major product to be released as part of Manuli Hydraulics' *Earth-First Project* initiative is the **GAIA** range of chlorine-free hoses.

End-on-life disposal of traditional hydraulic hoses generally results in landfill due to the fact that the rubber and steel components of the hose cannot be separated in a practical, cost-efficient manner.

The only effective way to remove the steel from the hoses is to burn the rubber away. However, typical synthetic rubber compounds include chlorine in their chemical make-up, and burning results in the release of extremely harmful chemicals known as *dioxins*.

What are dioxins?

Dioxins are a group of highly toxic chemicals which can cause cancer, reproductive and developmental problems, damage to the immune system, and which can interfere with hormones. They are one of the "dirty dozen", a group of dangerous chemicals known as "*Persistent Organic Pollutants*" (POPs), which take a long time to break down once they have been released into the environment.

GAIA - the intelligent solution

GAIA is the first hose from Manuli Hydraulics to be designed specifically with end-of-life disposal in mind. All the rubber compounds used are chlorine-free, so they can be safely burned without releasing dioxins into the environment, allowing them to be used as fuels in energy recovery processes such as *waste-to-energy* plants. They can also be used as a source for *pyrolysis* operations which produce oil, carbon-steel, carbon black etc., and in applications such as concrete production.

One of the most difficult aspects of producing practical chlorine-free hydraulic hoses is the impact that the removal of chlorine from the rubber compound has on key performance-related characteristics of the hoses.

Manuli Hydraulics has invested a huge amount of time and resource in the development of rubber compounds which do not include chlorine, but which still perform to a standard which far exceeds the industrial requirements for abrasion and ozone resistance (*see Fig. 1 & Fig. 2*). GAIA hose covers have the same performance characteristics as the **Manuli "STRONG" Cover**, which is already established as a market leading solution.

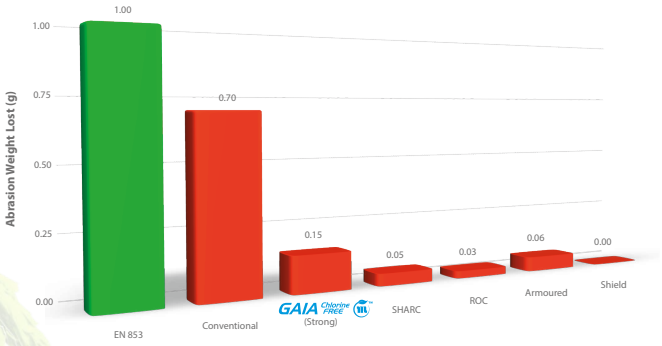

Fig. 1 - Weight loss after 2,000 cycles (EN 853 abrasion test)

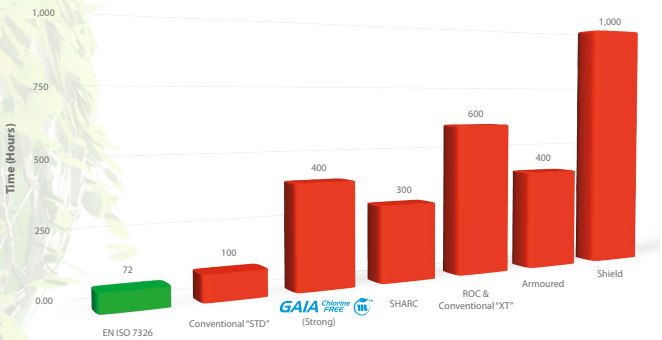

Fig. 2 - EN ISO 7326 ozone resistance test

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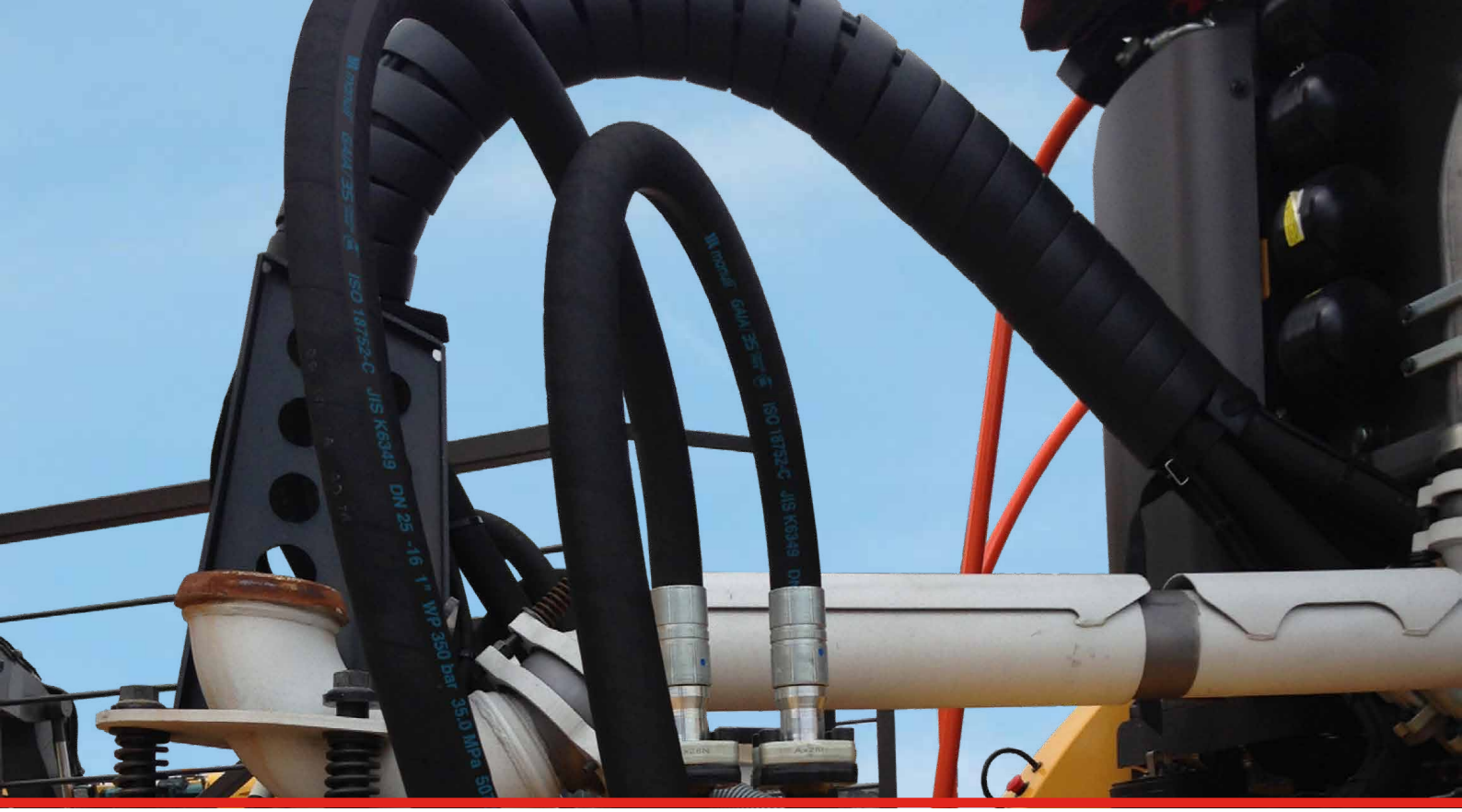

All the performance, none of the waste

GAIA hoses are the product of a combination of years of R&D with decades of experience producing some of the highest performing hydraulic hoses on the market. This has resulted in a hose family which performs at a level equal to some of the most widely used hydraulic hoses in modern industry.

Aside from the environmental benefits delivered by the innovative rubber compounds, GAIA is tested to 500,000 impulse cycles (ISO 18752 Type C), making it more than a match for most general and specialist hydraulic applications.

GAIA also has extremely high flexibility (equivalent to GoldenISO XtraFlex hoses) and minimum bend radii up to 50% lower than required by international norms.

Finally, as with all Manuli Hydraulics hoses, GAIA is designed to work seamlessly with a full range of fittings, including both skive and no-skive solutions. This allows GAIA to be used equally effectively as an OEM solution or as a field maintenance solution.

Actively contributing to an improved ESG performance

In recent years a company's ESG *(Environmental, Social and Governance)* rating has become a significant performance metric used across industries. Aside from having financial implications for companies, ESG indexes and parameters help stakeholders to understand a company's commitment to these topics and highlight potential long-term risks that they could face in the future.

By selecting components and products which are specifically designed to be more sustainable and environmentally-conscious, OEMs and wholesale customers can actively improve their ESG performance by reducing the company's environmental impact.

GAIA hoses have been specifically designed to be 100% recyclable at the end of their service life, meaning that they can actively decrease waste disposal, moving towards a virtuous circular process - **waste less, grow more.**

To find out more about GAIA hoses visit our website or contact your local Manuli Hydraulics sales representative.

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www.manuli-hydraulics.com