



CASE STUDY

SOURCE EXTRACTION REMOVES WELDING FUMES EFFECTIVELY

HITACHI

Reliable solutions

THE CHALLENGE

Worldwide Hitachi manufactures hydraulic excavators, wheel loaders, rigid dump trucks and crawler cranes. This case study is about the subsidiary in Oosterhout, the Netherlands. Here HCME – Hitachi Construction Machinery (Europe) NV – manufactures and assembles among others mini excavators weighing 1-6 ton and crawler cranes.

Thanks to the increasing sales figures HCME needed to extend the production capacity. To realise this some production lines had to move and the related extraction/filtration systems were upgraded. This extension was also an opportunity to examine the existing extraction arms and -where necessary- to replace them.

Plymovent gave professional advice, drew a system design and created a solution, tailored to HCME's requirements.

Hitachi Construction Machinery (Europe) NV (HCME) is a subsidiary of Hitachi Construction Machinery Co., Ltd., originally a Japanese company, founded in 1970. HCME is responsible for the manufacture, sales and marketing of Hitachi construction equipment in Europe, Africa, the CIS and the Middle East. In 2012 HCME celebrated the 40th anniversary of its operations in Europe.

www.hcme.com



TESTIMONIAL

"The Account Manager of Plymovent gave a workshop to our welders to emphasise the importance of welding fume extraction equipment. He also taught our welders how they should use the extraction arms in the most effective way. We really appreciate Plymovent's involvement. Very professional!"

We are very satisfied with our cooperation with Plymovent. Bearing our requirements in mind, they always offer the optimal solution in any specific situation. A practical advantage is that their service organisation is 'around the corner'. If we call them, we can expect an engineer within a few hours. We are looking forward to continue our relationship with Plymovent!"

» We are very satisfied with Plymovent. Not only because of the high-quality extraction systems, but also because of their well-considered advice and great service! «

QUOTE BY Mark van de Klundert, Production Engineering of HCME.



THE SOLUTION

To use both halls optimally some production lines needed to be moved to another hall. As soon as the new floor-plan of both halls were in place, Plymovent designed the system solution. Each workplace was looked at, to ensure optimal extraction of the welding fumes. Some old extraction arms were replaced straight away.

HCME has chosen source extraction, as this is the most effective way to remove welding fumes. Source extraction, via extraction arms, takes place straight near the actual welding process. As a result welders do not need to wear overpressure helmets as the welding fumes do not reach the breathing zone of the welder. Accumulation of welding fumes throughout the workshop is also not applicable. The extension cranes (NEC-4) guarantee a reach of 6 meters. Together with Plymovent, HCME has chosen the MultiSmart® Arm. This extraction arm is 3 m. The balance system is placed on the outside which makes adjusting the arm easy and user-friendly. The MSA features ergonomic design, outstanding stability, support and balance.

Besides source extraction, HCME needed to cover some robotic cells. Therefore extraction hoods were connected to the central extraction system as well.



MAIN BENEFITS

- Effective extraction of welding fumes via MultiSmart® Arm extraction arms.
- Welding fumes from the robotic cells are extracted via the same central extraction system.
- Where required, recirculation of clean and warm air takes place (reducing heating and ventilation costs).
- Safe, clean and healthy working environment.
- Annual check by Plymovent, ensuring the optimal operation of both welding fume extraction systems.

PRODUCT/SYSTEM FACTS

Hall 2 (multiple arm systems + hoods)

- 13 x MSA (MultiSmart® Arm, extraction arm)
- 5 x NEC-4 (extension crane)
- 3 x robotic cell (extraction via tailor-made hood)
- 1 x MDB-12 + SIF (9 kW) • filter/fan for 6 workplaces
- 1 x MDB-20 + SIF (22 kW) • filter/fan for 10 workplaces

Hall 3 (multiple arm systems + hoods)

- 17 x MSA (MultiSmart® Arm, extraction arm)
- 9 x NEC-4 (extension crane)
- 3 x extraction hood
- 1 x SCS* + SIF (7.5 kW) • filter/fan for 5 workplaces
- 1 x SCS* + SIF (7.5 kW) • filter/fan for 6 workplaces
- 1 x MDB-16V + SIF (18.5 kW) • filter/fan for 9 workplaces

Year of installation

- 2012

Application

- MIG/MAG welding
- TIG welding

* including a silencer, as the filtered air is not channelled outside, but recirculated and brought back into the workshop (using the filtered air as heat source = saving energy).



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