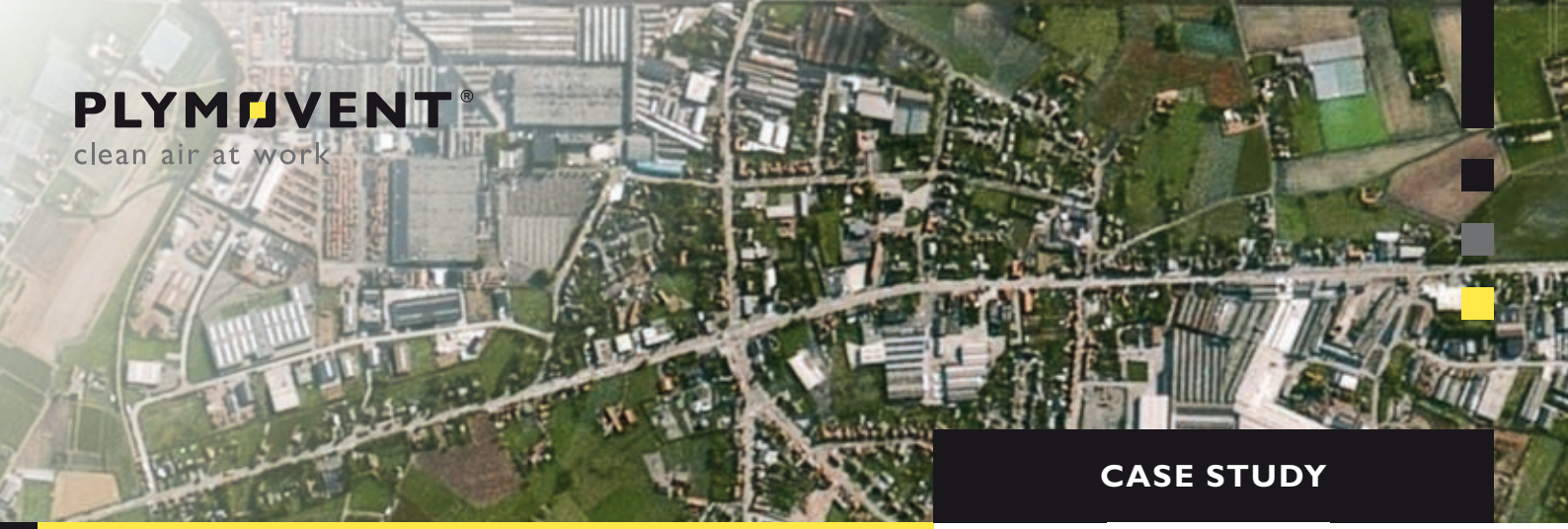
PLYMOVENT®
clean air at work



CASE STUDY

PLYMOVENT EQUIPMENT REALISES 70% WELDING FUME REDUCTION

NEW HOLLAND

THE CHALLENGE

The New Holland plant in Belgium was faced with various sources of pollution. Heavy welding is carried out by a range of large welding robots on tracks. One of the welding robots is placed on a track in a zone of 26 m long and 8,5 m wide. This robot performs intensive high amperage steel welding in various positions. In addition to this manual welding takes place all over the plant.

Case New Holland, whose story dates back to 1895, is a leading global manufacturer of agricultural and construction equipment with about 11.500 dealers in 160 countries. New Holland in Zedelgem manufactures combines, forage harvesters and large rectangular balers. CNH operates 39 manufacturing facilities and 26 research and development centers.

www.newholland.com

THE SOLUTION

Messrs. Stefan Vanderwalle (Product Manager) and Wim Vandenberghe (responsible for Plant Engineering) of New Holland, became interested in the concept of push-pull systems to eliminate welding fume after a visit to another metal processing factory. A first test installation in one of the welding areas gave very satisfactory results.

As the temperature of welding fume is higher than the environment, the fume rises and cools down. At a certain point the fume will have the same temperature as the surrounding air and forms the well-known blue layer of welding fume. A push-pull system blows this layer towards an extraction duct that is provided with inlet grids. Subsequently, the air reaches a filter

unit and is recirculated back in the welding zone by the outlet grids of the pull duct, mounted at the opposite of the push duct. This principle is called displacement and ensures a constant removal and filtration of welding fume.

Other robot areas have been provided with extraction hoods, whereas flexible extraction arms provide a proper source extraction device for the manual welding workplaces. A number of arms have been connected to stationary units with a self-cleaning filter system type SFS, while others form part of a system with central fan and filter unit.

In the meantime, Plymovent has been preferred supplier of push-pull and source extraction systems to Case New Holland since 2002. Each year they have invested in new push-pull and source extraction systems to gradually increase the working condition in the entire plant.

MAIN BENEFITS

- After installation regular test have been performed to check the air quality in the facility. The measured background concentration in almost twenty different zones range from 0,094 to 1,677 mg/m^3, whereas the OES (Occupational Exposure Limit) in Belgium is 5 mg/m^3. Compared to the measurements done before the installation, a reduction value of 60 to 70% has been realised.

Engineer: R.A.M. Jansen

SYSTEM FACTS

Year of installation
- yearly from 2002 to 2009.

Welding process
- MIG >350 Amps

Type of installation
- 9 U and parallel shaped push-pull systems.
- Robotic hood extraction.
- Source extraction systems with approx. 20 UltraFlex-3 and 4 arms with 2 m extension cranes NEC-2.

Filtration
- 13x SCS central filter unit.
- 7x stationary filter units type SFS.

BE-02

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Plymovent cares about the air you breathe. We deliver products, systems and services which ensure clean air in your work environment, anywhere in the world. Our expertise gained over many years, high-quality products and genuine commitment to customer requirements enable us to provide precisely the solutions you need.