
MAF
COMPOSTING
SYSTEMS

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Mobile Aerated Floo

Composting | MBT | Bio Filter | Biomass Drying

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Commercial Scale Composting

"When simple is best, its simply the best."

We would like to introduce you to a highly effective composting system that will surprise you with its simplicity and please you with its affordability.

MAF stands for **Mobile Aerated Floor**. Effective aeration is key to optimizing the composting procedure. **MAF** ensures a completely **aerobic process** throughout the windrow.

The key benefits of the **MAF** composting system are:

- **Minimum odour emissions**
- **Maximum utilization of working space**
- **Greater flexibility**
- **Lower production costs**



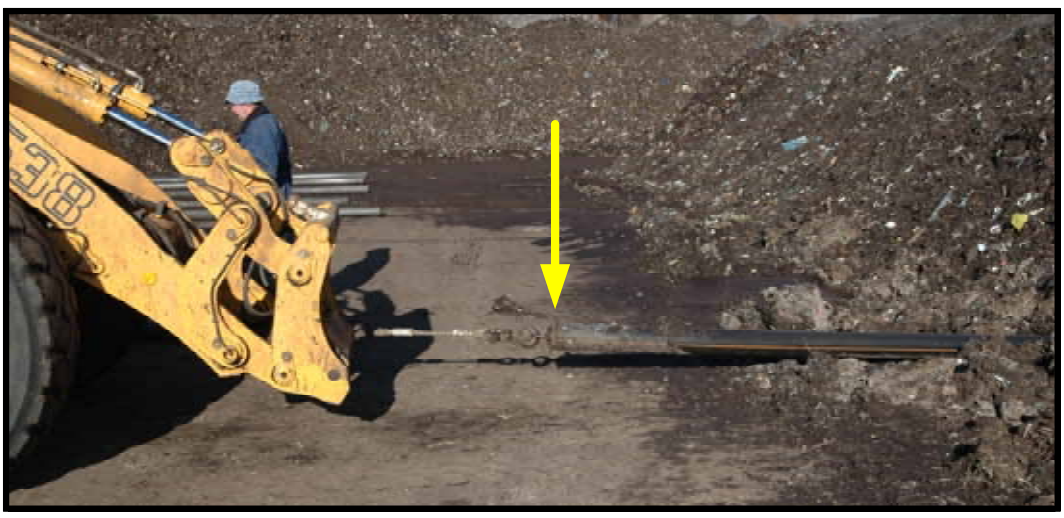

What is MAF?

We designed the MAF composting system to achieve superior flexibility and reduced handling costs.

Our system is placed directly on the ground (asphalt, concrete, packed gravel or even clay). All you need is 3 phase power and plenty of organic material to process.

The system is quickly and easily set up and just as easily removed.
The aeration pipes are fabricated from an extremely durable composite material with excellent flex capabilities. They are specially equipped with a coupling device that allows easy extraction from the windrow.

The entire compact MAF system can now be relocated. This is why we call it the **Mobile Aerated Floor** Composting System.



How does MAF work?

The aeration pipes are positioned on the ground and connected to the air supply units. Setting up an **Aerated Floor** for a 1500 m³ windrow will take about 30 minutes.

Load prepared raw material over the aeration pipes to a maximum height of 3.5m. Air volume controls are then adjusted to the appropriate settings on the air supply unit. Optionally, the MAF system can be equipped with automatic process controls (temperature, oxygen, electronic data transfer and computer aided systems management.) Uniform distribution of air is achieved through the exacting specifications of the MAF components and by **controlling the periodic injection of air in the windrow.**

When it is time to transfer the material to the next composting stage (or to the shredding or screening plant), the MAF system is quickly and easily disassembled and removed. The aeration pipes are simply pulled out from the compost by a specially developed collar and coupling assembly. This arrangement permits **unlimited reuse of the air supply pipes**. The entire dismantling procedure takes only twenty minutes for a MAF system installed on a 1500 m³ windrow. The wheel loader now has unhindered access to the windrow.

As of 2000, the Hauke – Erden plant (where MAF was developed) operates exclusively with this system in full compliance with the strict emission laws of the German Government.

How does MAF reduce odour?

Odour problems in composting plants almost always comes from **oxygen shortages in the windrow**. For instance, odour is exacerbated by disturbing the material, such as when it is being moved or being turned. The wind then carries this odour over long distances, leading to **complaints by residents and business in the vicinity.** The cause of odour stems primarily from **anaerobic processes** in the windrow that create a variety of organic acids, such as acetic acid and butyric acid. This is in addition to the potential production of hydrogen sulfide and methane gases. These substances are well known for their distinctively unpleasant odour. To avoid this anaerobic process, **air must reach the material throughout the windrow, thus converting it to an aerobic process,** the byproduct of which is simply CO2 and water. Paradoxically, the traditional method of turning windrows to aerate the material only manages to *increase* odour emissions since oxygen levels are greatly reduced within the compost shortly thereafter.

The MAF system significantly reduces odour emissions by *maintaining* an aerobic process throughout the windrow.

How does MAF reduce odour?

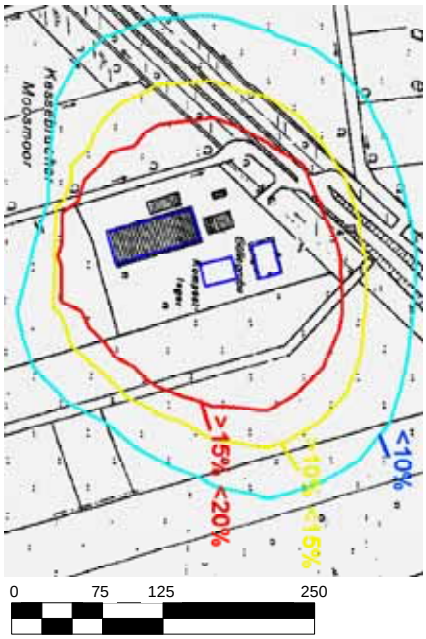
The following odour emissions survey charts are **excerpted from an official expert report** on behalf of a composting plant prior to and after modification to the MAF system. Subsequent to the implementation of in-vessel systems in 2000, the plant commissioned a report to show compliance with **government odour emissions regulations.**

Odour distribution map befor modification to MAF system

And how effective is it?

Although acceptable at the time, faced with a reduction of allowable emissions standards (due to take effect in 2007), the plant opted to modernize once again in 2004. **They chose the MAF system.** In order to accurately reflect odour emissions in the report after the MAF modification, the in-vessel systems were shut down. They were never turned on again.

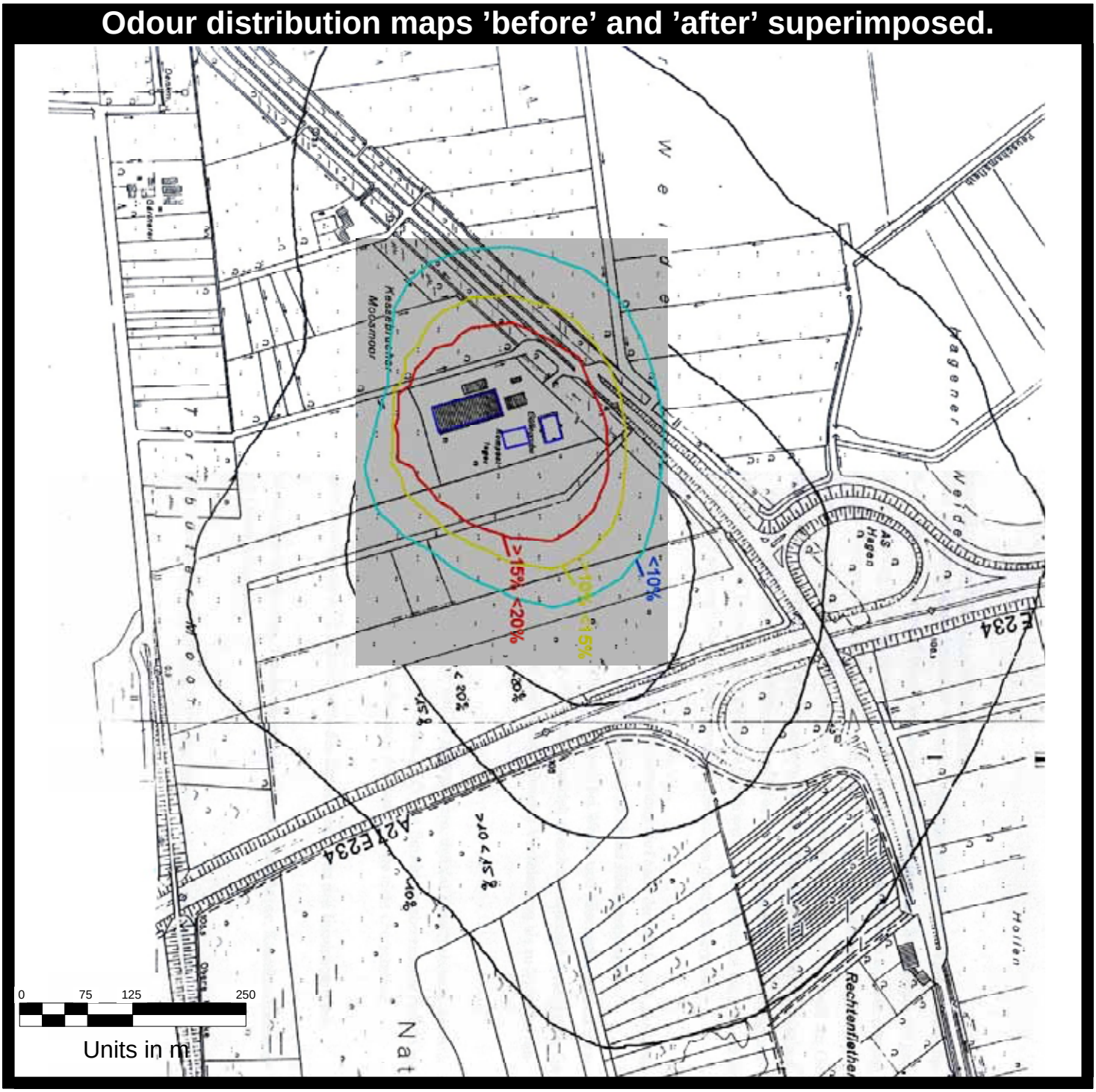
Odour distribution map after modification to MAF system



Units in m

To reflect the dramatic reduction in odour emissions after converting to the MAF Composting System, the ‘before’ and ‘after’ odour distribution maps are shown superimposed below.

Odour distribution maps ’before’ and ’after’ superimposed.



How does MAF add flexibility?

Flexibility is an important issue. A composting plant which works perfectly today may need some modifications tomorrow. Since the **MAF** system can be set up anywhere and in any configuration on plain ground, your only limitation is the size of your property. Expansion of input capacity, modifications and placement of material is easily incorporated into the production process and as such, applications to Governing authority's are facilitated.




How does MAF reduce facility and operational expenses?

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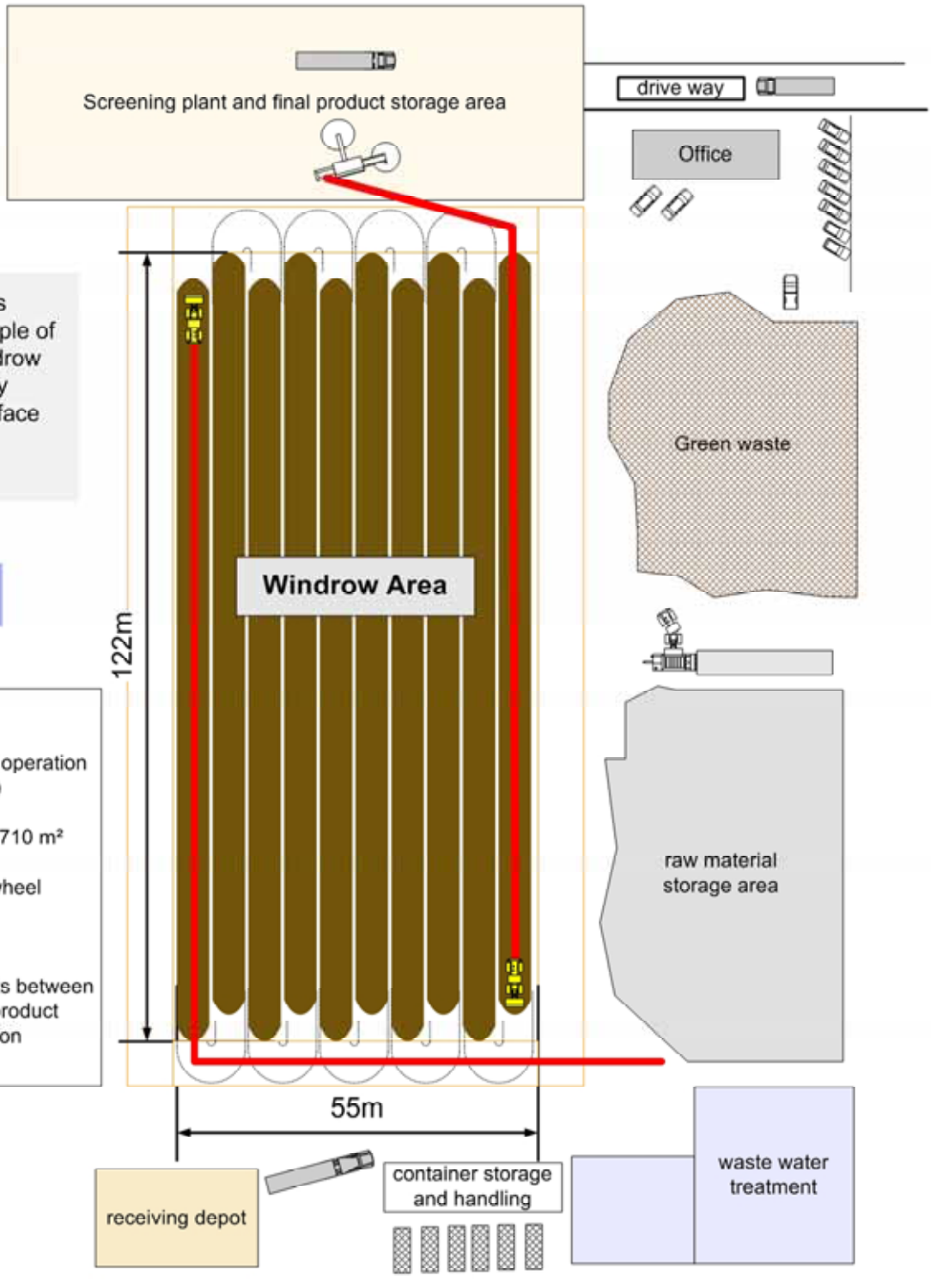


The following two pages provide a graphic example of how a typical open windrow operation can effectively economize not only surface area but also material handling costs

Comparison Study:

- Typical triangle windrow operation (20,000 tons per annum)
- Windrow surface area 6,710 m²
- Max. travel distance of wheel loader approx. 200 m

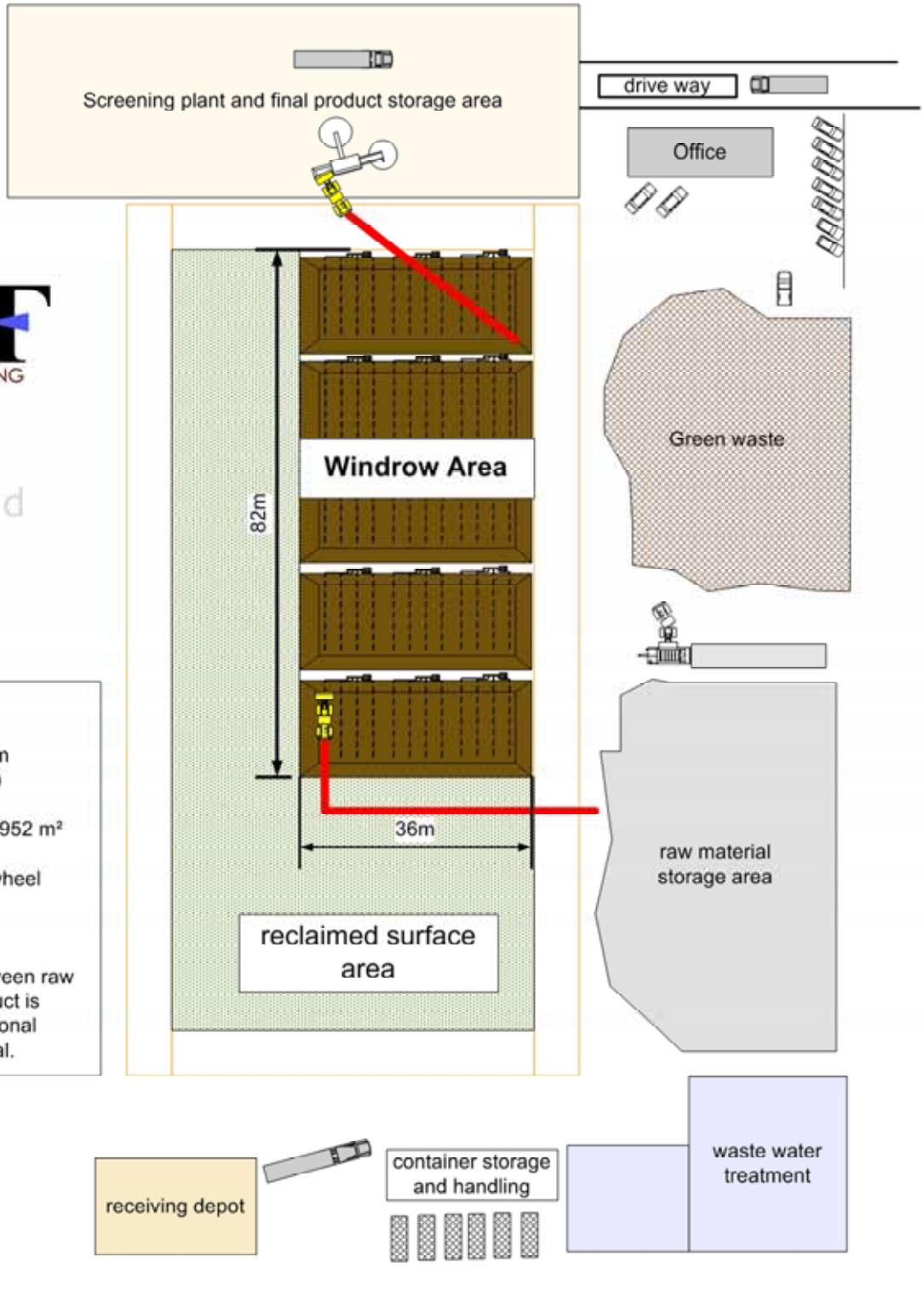
Note:
Risk of contamination exists between raw material and finished product due to inadequate separation between windrows.

Maximum travel requirement of material handling equipment

Contractor: Example	Plan description: General lay out 20.000 to/a Example triangle windrows 5 m X 2,4 m			
	Design by: MAF Compostin Systems, Kehlenweg 5 71686 Remseck, Hauke-enviro@email.de			
Project: Example	SIZE A2	Drawing: Martin Hauke	DWG NO Example 01	REV:
Approved:	SCALE 1:500	Date:	SHEET 1 OF 1	

0 15 25 50

MAF reduces surface area and material handling requirements.



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Comparison Study:

- MAF Composting System (20,000 tons per annum)
- Windrow surface area 2,952 m²
- Max. travel distance of wheel loader approx. 45 m

Note:
Risk of contamination between raw material and finished product is eliminated owing to transitional method of handling material.

Contractor: Example	Plan description: General lay out 20.000 to/a Example MAF Composting Systems			
	Design by: MAF Compostin Systems, Kehlenweg 5 71686 Remseck, Hauke-enviro@email.de			
Project: Example	SIZE A2	Drawing: Martin Hauke	DWG NO Example 01	REV:
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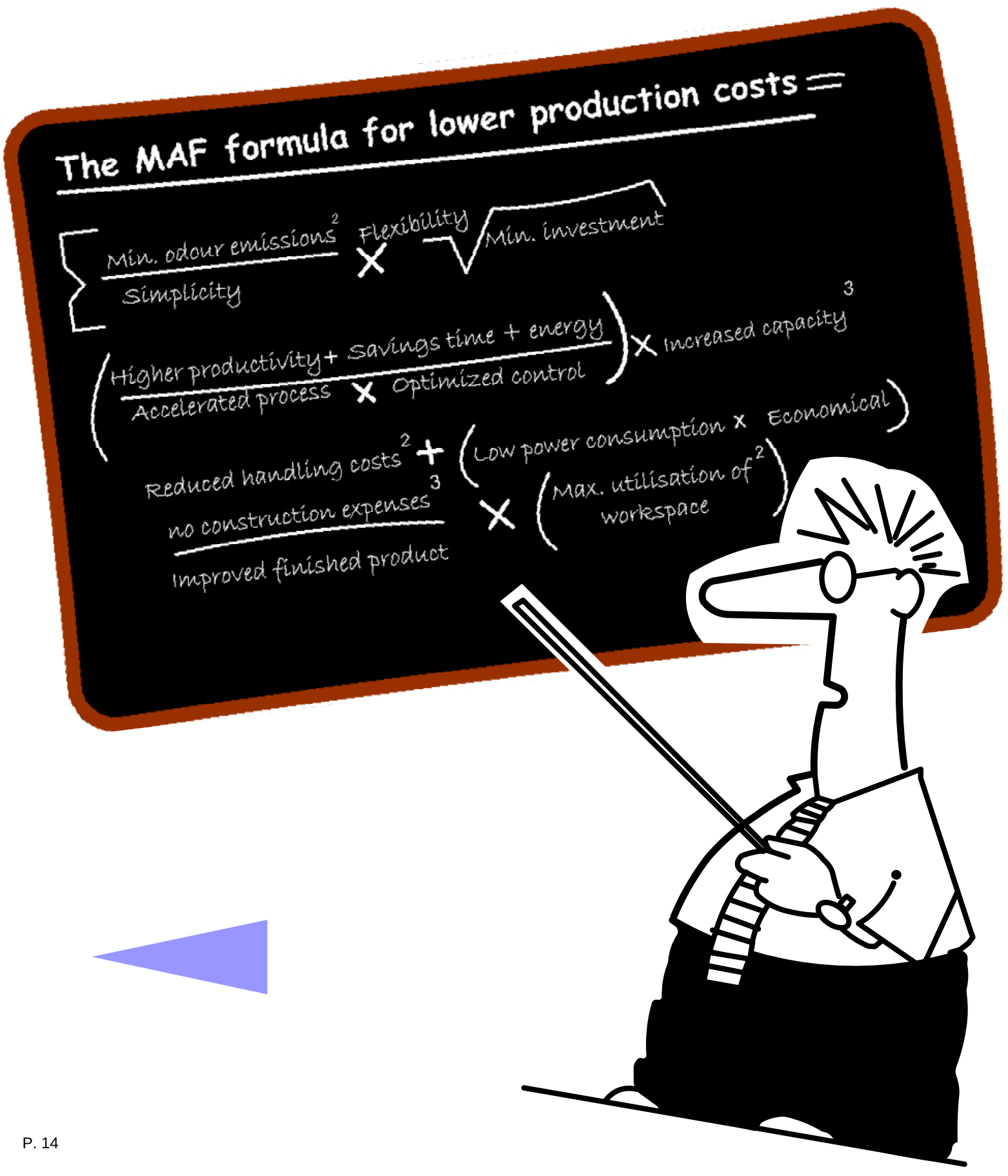
The MAF formula for lower production costs =
Min. odour emissions²
Simplicity
Flexibility
Min. investment
Higher productivity + Savings time + energy
Accelerated process
Optimized control
Increased capacity³
Reduced handling costs²
no construction expenses³
Improved finished product
Low power consumption x Economical
Max. utilisation of²
workspace

Who is MAF?

The **MAF Composting System** was developed by Martin Hauke who now heads up the company. Martin knows compost–he grew up around it. He joined the family business, Hauke – Erden, a leading German company with over three decades of experience in composting, as a managing director. Martin was instrumental in modernizing plant operations and developing technical systems.

By January 1998, the **MAF** system was in prototype operation. The production cost benefit of this technology, as well as the significant odour reduction, proved so convincing, that a decision was taken to convert the whole of the composting plant to the **MAF** system. Today, Martin is bringing his innovative development to the rest of the world.

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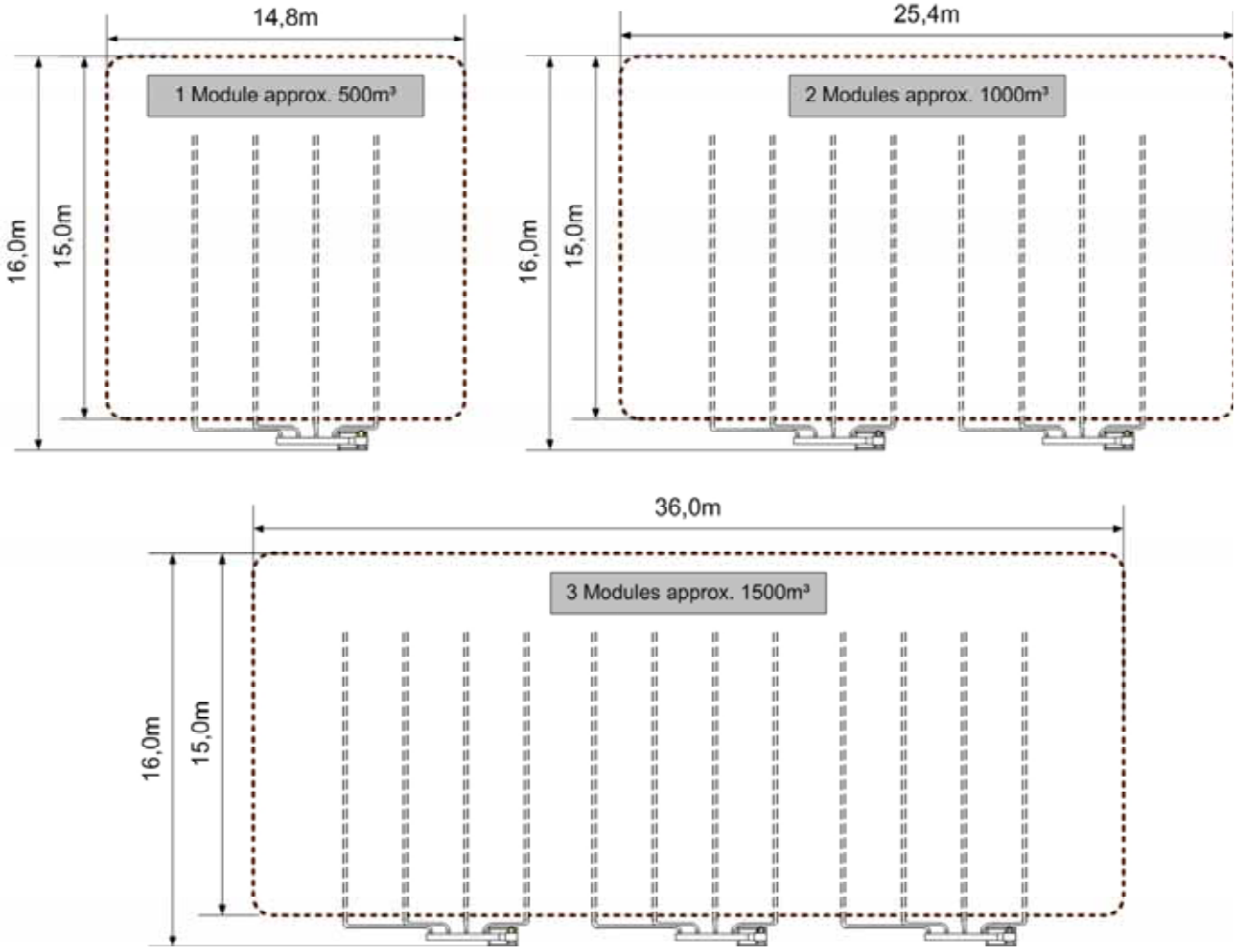
Technical specifications of one Module:

Operational voltage:	400 V
Controller voltage:	230 V
Motor output:	1,1 kW
Air pressure:	1300 PA
Weight:	97 Kg
Dimensions in meters (L X W X H):	4,2 X 0,8 X 1,7
Sustained maximum noise level (1 meter from fan)	74 dB (A)

Reference manual included

CE

Certified



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