MONTGOMERY E.H.S.

July 2012

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Re: Planning Application by Ballyfaskin Enterprises Ltd (12/306)

Dear Adrian,
Please find supplementary information in relation to application Ref: 12/278

Point 1 **Traffic Management**

Attached is a Traffic Impact Assessment for the proposed development (Attachment 1). The construction will not remove any material off-site was it will be used as part of the fill material or for landscaping.

Point 2 **Site Entrance and Sight lines**

A. Attachment 2 has a drawing of the proposed new entrance which has significantly improved sight lines. The sight lines from the entrance are 105 turning left and 160 turning right. This is a significant improvement on the existing entrance.
B. Attachment 2 include these requirement
C. No works will be taken on land not owned by the applicant
D. The existing site entrance will be closed and an earthen embankment will be constructed and 6 meter high Ash trees planted.

Point 3 & 4 **Mill Building & Landscaping**

The site is located in a low laying area with mature trees surrounding the site. The existing site is not visible from any neighbouring properties and a landscape report has been attached (attachment 3).

Point 5 **nearby Residences**

See attachment 4

Point 6 **Areas of Buildings**

Mr Ryan proposes to construct the following:

- 3 No. Fattening houses - (Floor area c. 3* 1531.8 m2) located on the site of, and replacement of 1 Fattening House (Floor area c. 1070.4 m2)
- 1 Feed Mill (Floor area c. 400 m2)
- Farrowing House (Floor area 653.3 m2)
- 1 Dry Sow House (Floor area 1192.4 m2)
- 1 Construction of a Farrowing Houses (floor area 653.312 m2) and replacement of existing farrowing house (Floor area 413.8 m2)
- 1 replacement of Gilt House (Floor area 258.5 m2)

Point 7 **Employees on-site**

The site will have 1 full time employee Pat Ryan and 2 part-time employees

Point 8 Odour

Dead animals are stored in plastic bags and then placed into a wheelie bin and the lid is secure

Point 9 **Nutrient Management**

As discussed with Adian Lenord the nutrient management requirements is undergoing significant changes. The report and management of slurry leaving the site is reported to the department of agriculture on an annual basis. The farms taking the slurry are recorded on a log on site with a copy of their farm nutrient deficiencies.

Attachment 4 is the nutrient management plan submitted to the EPA.

The rain water from the site is collected and discharges to a surface water stream and this will be subject to monitoring as part of the IPPC License

Point 10 **Groundwater Protection**

The new and existing underground storage tanks are constructed on-site using prefabricated concrete panels set on an outer reinforced concrete ring and tensioned with corrosion proofed wires prior to pouring the tank bottom, which effectively concretes the panels in place.

The commissioning process will involve leak testing of all the tanks. The water used for this operation will be supplied from the borehole and will be discharge to a surface water stream at a controlled rate; to be agreed with the EPA. The tanks are constructed with a minimum design life of twenty years and in full accordance with relevant standards.

There will be no spreading of the pig slurry with the area around the piggery. The recipient farmers collecting pig slurry are made aware of the Teagasc code of practice for spreading slurry.

The Nutrient management plan is reflective of these requirements

Point 11 Heating, Ventilation, etc.

The site will on completion of the development a fully free farrowing system with no confinement, even in the early days, to meet Freedom Food requirements. We reserve, however the right to protect the stockperson, who may in the normal course of animal husbandry, restrain individual sows for treatment or help with the birthing process;
Availability of fresh straw to avoid risk of tail-biting, sufficient in quantity also to provide comfort;
Temperature controlled solid bedded lying areas with minimum space allowances in line with Freedom Food requirements for all pigs including dry sows, farrowing sows, boars, weaners, growing and fattening pigs;
Generous total space allowances, beyond statutory requirements (which would be enhanced further if necessary) to enable tails to be kept on pigs without tail-biting;
Provision of natural light for the pigs;

Attachment 5 includes information on building systems

Point 12 Surface Water Drainage

Attachment 6 is a map showing surface water discharge points

Point 13 Domestic Wastewater

Currently employees of the piggery would use the toilet facilities on Pat Ryan domestic residence.

Point 14 Well Locations

The site has a well on-site which is used for potable water supply for Patrick Ryan residence and also his parent's residence. An off-site well is used to supply the water for the piggery. Attachment 7

Point 15 Pest Control

The pest control was undertaken by an external provider but due to poor practices and problems with pests, it was decided to management this by the applicant. The SDS for the bait is stored on-site and is available for inspection.

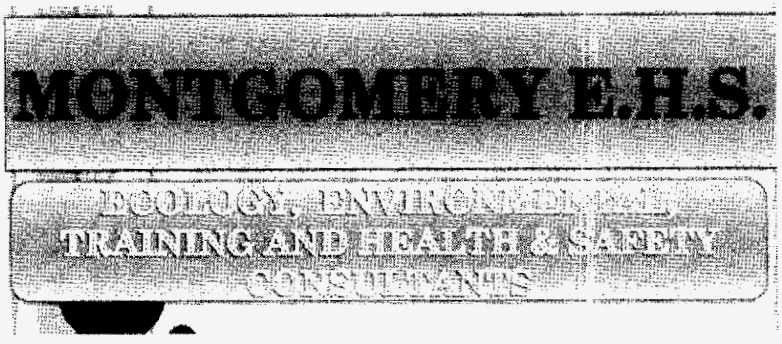
Please contact me if you require further information on the matter.

Yours sincerely

Trevor Montgomery, Post Grad Dip, BSc, Dip Mgmt, Dip Poll Ass & C,
Cert Envn Mont, Cert HSWW
Environmental and Health & Safety Consultant.

Attachment 1 Nutrient Management Plan for Wash Water

Attachment 1 Traffic Management



PATRICK RYAN
BALLYFASKIN ENTERPRISES LTD
BALLYFASKIN, BALLYLANDERS, COUNTY LIMERICK

Traffic Assessment

July 2012

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PATRICK RYAN

TRAFFIC ASSESSMENT

This document has been prepared on behalf of and for the exclusive use of Patrick Ryan by Montgomery EHS on the basis of a submission to Limerick County Council as part of the planning process.

Conclusions and recommendations contained in this Document are based on information supplied by the Client and others. Unless expressly stated otherwise, information provided by Third Parties has not been verified by Montgomery EHS.

Montgomery EHS accept no liability or responsibility whatsoever in respect of any use of or reliance upon all or part of this Document by any third party.

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1	Draft	MM	TM	Draft for review	Yes	19/06/12
2	Final	MM	TM	Issued	Yes	01/07/12

CONTENTS

1.0 Traffic

1.1 Introduction

This Traffic Assessment (TA) has been undertaken to determine the traffic impacts during the operational and construction phases of the proposed modifications and extension to the Ballyfaskin Enterprises Piggery were also examined.

1.2 Methodology

The methodology adopted for this traffic impact assessment has been summarised below.

Traffic Data Collection: A manual classified traffic survey was undertaken on June 28th and 29th 2012 at the junction of the R662 at the Ballyfaskin cross roads. This information was used to understand existing traffic conditions, particularly the morning and evening peaks.

Junction Capacity Analysis: This analysis was undertaken for existing and where appropriate future traffic conditions in order to establish if there would be any operational difficulties such as queuing.

Visibility Analysis: This was undertaken to ensure that drivers travelling from a minor road would have adequate visibility in each direction to see oncoming major road traffic. This visibility provides drivers with sufficient time to permit them to make left and right manoeuvres safely. Poor visibility at a junction can have adverse safety implications and can also reduce the capacity of turning movements.
This TA has been undertaken with reference to the following documents

- Guidelines for Traffic Impact Assessment (Institution of Highways and Transportation), September 1994
- National Roads Authority, Design Manual for Roads & Bridges
- National Roads Authority, January 2005, Draft Traffic and Transport Assessment Guidelines.
- Highways Agency (UK), Design Manual for Roads & Bridges
- Environmental Protection Agency, March 2002, Guidelines for Information to be contained in Environmental Impact Statements.

1.3 Description Of Existing Environment

1.3.1 Location

Patrick Ryan's site at Ballylanders, Co. Limerick is located within the town land of Ballyfaskin, northeast of Ballylanders town centre and north of the R513 as shown on Figure 1.
The proposed development will be constructed on the existing site, at grid reference R 78891 23469 (O. S. Map no.73). The site is located in a rural farmland area, approximately 3km northeast of the town of Ballylanders.

The piggery complex is situated alongside a regional road (R 662) which runs along the north of the site in an north northly direction and which connects to the R512 to the south. To the north of the site is Ballyfaskin Cross Roads which intersects a local road and the R662.

The nearest dwelling house is the developer's, at a distance of approximately 30m north of the site. The next dwelling house is approximately 40m from the site. The area is extremely rural and not highly

populated. The site of the proposed development is currently used for silage cutting and existing piggery buildings.

The site boundary is marked by a combination of hedgerowes and fencing. The complex is situated on a flat ground and it is largely shielded from view from all directions due to the trees characteristic of the topography.

However every effort will be made by the developer to further obscure the complex from the surrounding locale, if necessary, by a combination of a further hedgerow, native trees, fencing or soil embankement.

The proposed development will not severely impact the landscape of the area and will blend with the existing agricultural units on the site.

The proposed development would have a capacity to increase the number of sows from 400 to 600. The maximum height of the proposed buildings would come from the Mill which would be approximately 18.3 meters to apex.

The site boundary is marked by hedgerows with fencing in some parts. The existing entrance is located at the northern boundary and has been considered unsuitable for the proposed and existing piggery operation, as indicated in the Site Layout Plan (Figure 5 and T001).

1.3.2 Traffic Data

1.3.2.1 Manual Classified Count Traffic Survey

A manual classified traffic survey was undertaken at the Ballyfaskin junction of the R662 for both the AM peak (07:00 – 10:00) and PM peak (16:00 – 19:00). The traffic surveys were undertaken on the 28th and 29th June 2012. The weather conditions were mixed with sunny dry spells with occasional showers.

The purpose of the surveys was to record R662 and local traffic volumes, as well as traffic accessing the Piggery in order to understand current traffic conditions at this location. It was felt that the NRA data referred to above would not adequately reflect the traffic conditions in this particular location for the purposes of this TIA.

The results showed that the busiest period during the AM peak was 06:30 – 08:30 and the PM peak was 17:00 – 18:00. This is largely associated with the operation of the people to and from work in Limerick. The diagrams (**Figure 20.1** and **20.2**) summarise the traffic movements for these peak periods. The majority of traffic during the AM peak travels from the Tralee direction on the N69 where approximately just over half of this traffic travels to Aughinish Island, while the traffic from Limerick is generally lower. During the PM peak 17:00 – 18:00 there is an equivalent number of trips departing east and west from Aughinish Road.

1.3.2.2 Influencing Factors

Junction Layout: The R662 road junction is a two armed junction located within a 80kph speed limit. The carriageway width of the R662 is 6.0 metres with no hard shoulder.

Just past this junction towards Mitchelstown there are a series of bends as indicated by the signage provided in this area.

Additional Construction Traffic: Additional construction traffic on the R662 with the construction of an additional piggery building was included in the traffic survey results. These traffic movements would not normally be present as this particular construction is a once-off occurrence. Due to the length of

the construction period and project time constraints, it was not possible to carry out the traffic survey at a later date. The following information was obtained from the client in order to subtract those vehicles associated with the above development.
The working hours of the construction referred to above are from 08:00 – 18:00 Monday to Saturday. There are approximately 10 employees at peak associated with this construction. There are approximately 4-5 vehicles (two-way) accessing this particular development. It has been assumed that of the 4-5 vehicles, approximately 50% travel from the R662 west and 50% travel from the R662 east. These assumptions have been deducted from the traffic survey results.

1.3.2.3 Junction Visibility

Geometric standards for major/minor priority junctions are provided in Chapter 7 of the DMRB. These include standards for visibility. It is essential that minor road drivers have adequate visibility in each direction to see the oncoming major road traffic in sufficient time to permit them to make their manoeuvres. The visibility distance required from the minor road is determined by the speed limit on the major road. **Table 1** below shows the corresponding visibility distance for each speed limit.

Table 1: Visibility Distances from the Minor Road (Source: DMRB – Table 7/1)

Speed Limit of Major Road (Kph)	Visibility Distance (m)
70	120
85	160
100	215

The visibility at the R662 priority junction was assessed in order to determine if it meets the above DMRB standards. This is to ensure that traffic making the right turn movement from the R662 (major road) to the suite (minor road) is able to see oncoming traffic in sufficient time to permit them to make the right turn manoeuvre safely. This requirement also applies to traffic on the Site road emerging onto the R662.

The speed limit on the R662 at the above priority junction is 80kph. The corresponding visibility distance required by the DMRB is 160m to the east and west of the site road, in this case the R662. The visibility assessment was carried out as part of a desktop survey as it was too dangerous to undertake on site. Photographs were taken during the site visit to facilitate the desktop visibility analysis. The results of the analysis show that there is sufficient visibility to the east of the junction as the 160m was achieved. However visibility to the west of the junction did not reach the required 160m. There is a wide bend in the R662 to the west of the Ballyfaskin Cross Roads which compromises visibility. In addition to this the presence of thick vegetation 1-2m in height to the west of the minor road and the location of a property close to the carriageway also reduces visibility. The resulting visibility distance to the west of the minor road is approximately 105 metres. This could have adverse safety implications particularly within this high speed limit of 80 kph.

1.4 Proposed development

The application relates to a proposed integratec sow pig production unit finishing c. per annum, at 105 to 110 kg. live weight. As a result of the breeding programme and the high health status of the pigs on this farm, some of the gilts bred and reared on this farm may be sold to other pig farms as replacement breeding stock. It is the intention of the applicant to operate the farm with the uppermost regard for environmental protection while at the same time implementing modern management methods on the farm.

This farm currently operates with a maximum capacity for a Sow unit. At present Mr. Ryan finishes 100% of the pigs on this farm. Planning Permission was granted to Mr. Ryan for development on this farm by Limerick Co. Co. in 2009, for the extension of farrowing house D and replace existing farrowing house E and associated site works.

It is the intention of the applicant to continue to operate the farm with the uppermost regard for environmental protection while at the same time implementing modern welfare and environmentally friendly management processes on the farm. Modernisation/consolidation is an essential part of viable sustainable pig production. The structures for which permission is being sought incorporate modern design concepts in the areas of animal welfare, insulation, ventilation and environmental protection in the operation of the farm.

Improvement in production efficiencies in the breeding herd and performance in the grower/finisher pigs are dependant on provision of adequate top quality housing and welfare in tandem with modern feeding and ventilation systems and top quality genetics.

Mr. Ryan proposes to construct the following:

- 3 No. Fattening houses. (Floor area c. 3* 1531.8 m2) located on the site of, and replacement of 1 Fattening House (Floor area c. 1070.4 m2)
- 1 Feed Mill (Floor area c. 400 m2)
- Farrowing House (Floor area 653.3 m2)
- 1 Dry Sow House (Floor area 1192.4 m2)
- 1 Construction of a Farrowing Houses (floor area 653.312 m2) and replacement of existing farrowing house (Floor area 413.8 m2)

2.0 Baseline Conditions

2.1 Site Location

2.1.1 Surrounding Road Network

The R662 Road is an all purpose two lane road and provides a link to Mitchelstown to the South west and Galbally to the north (Figure 1).

The location of the site and surrounding road network allows access to the M8 to the south and the N24 to the north, permitting easy connections to the surrounding area and region. Overall the road connections are good and provide further links to the wider road network and surrounding regions.

2.1.2 Existing Traffic

Traffic flow data from the R662 is from manual data collected in the vicinity of the site, there is no data available from the NRA or Limerick County Council.
The manual flow data has been obtained for two normal days and average flows are summarised in Table 2 below.

Table 2 - Two day weekday average base flows on the R662 (28th and 29th June 2012)

	South Bound	North Bound	Two-way
AM Peak 08:00- 09:00	135	167	302
PM Peak 17:00 - 18:00	156	135	291
12 Hour 07:00- 19:00	504	434	1,198

2.2 Accessibility

In terms of sustainable travel to the site, the very nature of the development and the imports and exports that the facility will have, requires the site to be located away from urban/built up areas. The chosen site is sheltered from both local residents and passer-by such this rural location is reflected in the reduced accessibility by non-car modes.

An assessment of the site's accessibility has been carried out and the nature of the development has necessitated a rural setting, this has been reflected in the reduced accessibility of the site to non-car modes. It is more imperative that this type of development has good links to the wider road network.

3.0 Potentially Significant Effects & Mitigation

3.1 Proposed Development

The proposed development is a self-contained pig unit and the site covers an area of approximately 2 hectares. Which some is the operating pig fattening unit and agricultural land

The expanded facility will have a capacity of gs and will replace should of the existing pig buildings, which had a capacity of J pigs (-.

3.2 Traffic Generation

To provide an accurate representation of the existing vehicular trip rates a first principles approach has been adopted.

A detailed breakdown of the imports and exports has been assessed as part of this report along with the type and capacity of the agricultural tractors, trailers and tankers that will be used in the transportation of the materials.

For the purposes of this TA to provide a robust assessment of the traffic generation.

3.2.1 Imports

There will be an initial delivery of sows across 2 loads ws in each). In addition to this, there will be 1 loads per year of s. In subsequent years approximately sows will be required to replace 'grand parent stock' there will be 5 loads per year of sows per year.
There is a requirement of 12,000T of pig feed/year, assuming loads of 25T / HGV, this equates to 480 HGVs/year.

Overall at this stage, imports are expected to constitute approximately 483 HGV two- way movements per year ((480+1+2)x2). This will equate to 2.7 HGV movements a day (966/365).

Placed in context with the average daily 12 hour 2 way flow of the R662, this represents a minimal increase to the base flow.

3.2.2 Exports

The expanded facility will generate 11,0000 m3 of pig slurry and will be transported off-site to recipient farmers. Based on a HGV capacity of 25T, the export of the pig slurry from the site will generate 446 HGVs per year.

There will be bacon pigs per year, assuming pigs per HGV this equates to 100 HGVs per year.

sows per month will be culled and replacements bred on site and these will be sent to an abattoir. This will equate to 6 HGVs per year.

Overall at this stage exports are expected to constitute approximately 552 HGV two-way movements per year ((446+100+6)*2). This will equate to 3.0 HGV movements a day (1104/365).

Placed in context with the average daily 12 hour 2 way flow of the R662 this represents a minimal increase to the base flow.

3.3 Construction Traffic

When considered in the context of the existing level of traffic flows on the surrounding road network, the number of construction vehicles is not expected to have a significant impact on the operation or safety of the surrounding road network.

The only point of access for construction traffic will be new entrance which will be the first construction activity. In the early stages, lorry movements will be principally related to activities associated with site clearance and levelling, it is not envisaged that there will be any removal of material as any surplus soil will be used in the bunding. During the remainder of the construction period, lorries will bring material onto the site. There will be some car and van movements due to construction workers.

3.3.1 Employment

There will be a total o. members of staff that will be employed by the facility, of which one will live in the dwelling to the south of the site. The remainder of the staff would start work at 07:00 with an 8- 9 hour shift. There will be work on weekends, the staffing level is halved.

In terms of trips generated by the site it has been assumed that the majority of the staff will drive to the site. Off site workers could generate up to 4 two-way vehicle trips per day and a further 6 two-way vehicle trips for deliveries and visitors.

The site will operate 24 hours/day, 365 days/year however, imports and exports will take place 07:00-19:00 Monday to Friday and 07:00-13:00 on Saturdays (286 deliverable days). There will be no significant seasonality and there will be a fairly flat arrival and departure profiles.

'Weekday shifts shall commence at 07:00 for off-site staff, and shall last for a period of 8 or 9 hours, unless in exceptional circumstances. I

Additional service vehicles that will require access to the site include monthly mineral feed concentrate deliveries and monthly sundries delivery. The operators of the pig unit are in the process of arranging one order from one main supplier. Veterinary visits would be quarterly.

3.3.2 Assessment of Sensitivity

The assessment of sensitivity has been undertaken using the results of the baseline assessments to determine the likely current sensitivity of receptors on, and in the vicinity of the site in conjunction with the sensitivity scale set out in Table 2.

Table 3 - Criteria for assessing the sensitivity of receptors

Table 3 Sensitivity of receptors	Description of receptors
High	Receptors with the greatest sensitivity to changes in traffic flow such as junctions and links at capacity, points of access to schools, hospitals and playgrounds. Urban and residential roads (including Home Zones) used by pedestrians without pavements. Areas with no public transport provision.
Medium	Traffic flow-sensitive areas such as junctions and links with high flows but that are not at capacity. Heavily used areas such as local or district centres and employment areas. Areas with narrow or poor quality pavements and unsegregated cycleways. Conservation Areas. Areas with limited public transport provision (e.g. peak hour only or over-subscribed services)
Low	Receptors with some sensitivity to changes in traffic flows such as links and junctions with moderate or low flows that are operating within capacities, residential and employment areas with appropriate pavements and crossing facilities, public open space, nature conservation areas and areas with Listed Buildings. Areas with good public transport provision (i.e. frequent services within capacity).
Negligible	Receptors with a very low sensitivity to traffic flows and/or distant from affected roads and junctions

3.4 Assessment of Magnitude

The assessment of potential impact has been undertaken by comparing the identified baseline conditions of the site and its surrounds with the development proposals. The magnitude of potential effects has been considered based on the scale set out in Table 4

Magnitude of Change	Description of the scale of change
Large	A change in total or segregated traffic flow 1of greater than 50% or any change in traffic flow that would result in the capacity of a link or junction being exceeded. Removal or addition of a public transport service(s) A change in total or segregated traffic flow of between 25% and 50%.
Medium	Permanent severance of an existing footpath or cycleway or alterations to public transport services (e.g. frequency of service or patronage). Creation of new cycleway or public footpath
Small	A change in total or segregated traffic flow 1of between 10% and 25% or temporary severance of an existing footpath or cycleway. Enhancement to the pedestrian and cycle environment.
Negligible	A change in total or segregated traffic flow 1of less than 10%.

1 'Segregated traffic flow' refers to either HGV or light vehicles (e.g. Cars)

The significance of impacts identified is determined on the basis of the matrix in Table 5, by considering the perceived sensitivity of the receptor in conjunction with the predicted magnitude of effect.

Table 5 - Assessment of impact significance

		Magnitude of effect			
		Large	**Medium**	**Small**	**Negligible**
Sensitivity of receptor	High	Substantial	Substantial	Moderate	Minor
	Medium	Substantial	Moderate	Minor	Neutral
	Low	Moderate	Minor	Minor	Neutral
	Negligible	Minor	Neutral	Neutral	Neutral

As Table 6 clearly indicates, the levels of development generated traffic are minimal and as a result will not have a material impact on the road network in terms of the sensitivity, magnitude and significance.

Table 6 - Assessment of impact significance

	Sensitivity	**Magnitude**	**Significance**
R662 South	Negligible	Negligible	Neutral
R662 North	Negligible	Negligible	Neutral

3.5 Site Access

The current access to the site is gained an opening along the tree line. This has been deemed insufficient and a new site access road. This will significantly improve access and egress from the site as the sight lines have been increased from a few meters to 105 m in looking south and 160 m looking north.

3.6 Mitigation Measures

The increase in traffic generation will be low and therefore no mitigation is required arising from the proposed development.

'Weekday shifts shall commence at 07:00 for off-site staff, and shall last for a period of 8 or 9 hours, unless in exceptional circumstances.
The access to the site meets current standards and will not require additional works.
The changes in vehicle flows as a result of the development are negligible and will not materially affect the operation of the junction or the wider road network.

4.0 Residual Effects

As stated previously there will be no residual effects due to:

- The increase in traffic generation is perceived to be low.
- Accidents involving HGVs are not over represented and as the development generated traffic of HGVs being added to the network is minimal, it will be within the daily variation of the network's flow.
- The access to the site meets current standards has required the construction of a new site entrance and the addition of the minimal development generated traffic.
- The changes in vehicle flows as a result of the development are negligible and will not materially affect the operation of the site junction or the wider road network.

5.0 Conclusions

Montgomery EHS was commissioned by Ballyfaskin Enterprises Ltd to advise on the transport implications of the expansion pig unit.

This TA has reviewed the existing operation at the site and shows that this has not lead to any identifiable road safety or capacity issues.

This TA discuses the potential traffic generation at the site and concludes that the increase will be minimal and will not have an adverse effect on the existing road network. It is important to note that for the purposes of the TA to provide a robust assessment of the traffic generation. The overall impact on the network will therefore be less than assessed within in the TA.

This TA concludes that the proposed development will have no material impact on highway safety in operation.

The TA concludes that the proposed development is in accordance with national and regional guidelines and that for the reasons set out in this report and summarised above, the proposed development will not have a significant transport impact and that there are no transport grounds for refusing the application.

Attachment 2 **Site Entrance and Sight lines**

Attachment 3 **Mill Building & Landscaping**

MONTGOMERY E.H.S.

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VISUAL IMPACT FOR THE PROPOSED EXPANSION OF A PIGGERY OPERATION

July 2012

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PATRICK RYAN

VISUAL IMPACT

This document has been prepared on behalf of and for the exclusive use of Patrick Ryan by Montgomery EHS on the basis of a submission to Limerick County Council as part of the planning process.

Conclusions and recommendations contained in this Document are based on information supplied by the Client and others. Unless expressly stated otherwise, information provided by Third Parties has not been verified by Montgomery EHS.

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1	Draft	MM	TM	Draft for review	Yes	8/07/12
2	Final	MM	TM	Issued	Yes	12/07/12

CONTENTS

1 INTRODUCTION

In July 2012 Montgomery EHS were commissioned to carry out a landscape and visual appraisal of land to surrounding the existing and proposed expanded pig fattening unit, on behalf of Ballyfaskin Enterprises. The objective of the study was to provide guidance on the landscape and visual issues associated with the development of a pig fattening unit.

The Project proposed occupies approximately 2 Hectares and includes a number of purpose built pig rearing units. Proposals will also include a framework of structural planting and landscaping. The study area for this assessment is shownat Figure 1.

This report sets out the assessment methodology and describes the baseline landscape character and visual resources, identifying key viewpoints from publically accessible locations. Recommendations have been made with regard to landscape mitigation measures and green infrastructure.

2 2.0 METHODOLOGY

2.1 Landscape and Visual Assessment

The assessment is made with regard to the vulnerability of the landscape to change and to the location of visual receptors relative to the proposed development. The methodology use in the assessment is based on the EPA Guidelines on the information to be contained in Environmental Impact Statements, 2002 and Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2003.

A Landscape and Visual Impact Assessment of the proposed scheme has been conducted encompassing the "Guidelines for Landscape and Visual Impact Assessment" (GLVIA) published by the Landscape Institute and the Institute of Environmental Management and Assessment 2002, and "Landscape Character Assessment". These documents do not provide a prescriptive approach to assessment but identify principles and good practice. The methodology for this assessment is described in the following section and is based on this approach.

The Guidelines for Landscape and Visual Impact Assessment (GLVIA) states;
"Landscape impact assessments, in common with any assessment of environmental effects, include a combination of objective and subjective judgments, and it is therefore important that a structured and consistent approach is used. It is necessary to differentiate between judgments that involve a degree of subjective opinion (as in the assessment of landscape value) from those that are normally more objective and quantifiable"

The GLVIA also states;

"Landscape and visual assessments are separate, although linked, procedures. The landscape baseline, its analysis and the assessment of landscape effects all contribute to the baseline for visual assessment studies. The assessment of the potential effect on the landscape is carried out as an effect on an environmental resource, i.e. the landscape. Visual effects are assessed as one of the interrelated effects on population".

Landscape effects result from changes to the physical landscape. which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape. The description and analysis of effects on a landscape resource relies on the adoption of certain basic principles about the positive (or beneficial) and negative (or adverse) effects of change

in the landscape as a result of development. Due to the inherently dynamic nature of the landscape, change arising from a development may not necessarily be significant.

Landscape assessments are used to aid decisions about the ability of an area to accommodate change, be it as a result of new development or other land use and land cover changes such as woodland planting. Judgments are based upon an understanding of the ability of the landscape to accommodate this change and on the significance of effects that may arise as a result of change. In some circumstances the creation of new landscape characteristics may be appropriate.

Visual effects relate to the changes that arise as a result of changes to the landscape, in the composition of available views, to people's response to change, and to the overall effects on their visual amenity. The extent to which the site is visible from the surrounding area has been broadly determined, and those people which have a viewing opportunity (i.e.: properties, public footpaths, roads etc.) of the site have been identified.

2.2 Assessment and Design are an iterative process

An iterative design approach enables the site planning and detailed design for the proposed development to be informed by the ongoing assessment. The amended proposals then feed back into the assessment process, until the preferred design solution is reached. This approach has been adopted with this scheme.

2.3 Mitigation

The purpose of mitigation is to avoid, reduce and where possible remedy significant adverse effects on the environment arising from the proposed development.
Mitigation is thus not solely concerned with 'damage limitation' but may also consider measures that could compensate for unavoidable residual effects.

Mitigation measures are generally more effective if they are designed as an integral part of an iterative process of proposed development planning and design. Mitigation is thus used as a design approach that is, where possible, implemented from proposed development inception when alternative designs or site options are being considered. Mitigation measures are an inherent part of this proposal and are described fully in the Environmental Statement.

2.4 Impact Assessment Methodology

Following the baseline landscape studies, the assessment stage includes the systematic identification of potential impacts, prediction of their magnitude and assessment of their significance.

In the context of landscape and visual assessment, the following terms are used:-

2.5 Landscape character

The distinct and recognizable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the particular sense of place of different areas of the landscape.

Sensitivity or capacity of the landscape resource

The degree to which a particular landscape type or area can accommodate change arising from a particular development, without detrimental effects on its character, will vary with:-

- Existing land use;
- The pattern and scale of the landscape
- Visual enclosure / openness of views, and distribution of visual receptors;

- The scope for mitigation, which would be in character with the existing landscape;

Variations of these characteristics within the local landscape and within the site need to be identified.

2.6 Scale or magnitude of landscape effects

There is no standard methodology for the quantification of the magnitude of effects. However, it is generally based on the scale or degree of change to the landscape resource, the nature of the effect and its duration.

Sensitivity of visual receptors

The sensitivity of visual receptors and views will be dependent on:

- the location and context of the viewpoints;
- the expectations and occupation or activity of the receptor;

The most sensitive receptors may include:

- users of outdoor recreational facilities including public rights of way, whose attention or interest may be focused on the landscape;
- communities where the development results in changes in the landscape setting or valued views enjoyed by the community;
- Occupiers of residential properties with views affected by the development.

The least sensitive receptors are likely to be people at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who therefore may be potentially less susceptible to changes in the view.

Scale or magnitude of visual effects

The magnitude or scale of visual change is described by reference to:

- the scale of change in the view with respect to the loss or addition of features in the view and changes in its composition including the proportion of the view occupied by the proposed development;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture;
- the duration and nature of the effect, whether temporary or permanent, intermittent or continuous, etc.;
- the angle of view in relation to the main activity of the receptor;
- the distance of the viewpoint from the proposed development;
- The extent of the area over which the changes would be visible.

2.7 Landscape Impact

For this assessment the following criteria applies:

Landscape sensitivity or capacity

High	Landscape areas with particularly distinctive or positive characters or with valued landscape features. The areas may be sensitive to relatively small changes.
Medium	Landscape areas with reasonably positive character, but with evidence of

	alteration or degradation of the character or features. Potentially tolerant of some change.
Low	Landscape areas with a weak character or relatively few features of value, potentially tolerant of significant change.

Magnitude of Landscape Change

High adverse	Total loss of, or major alteration to the key characteristics or features of the landscape area.
Medium adverse	Potential loss of or alteration to the key characteristics or features of the landscape area.
Low adverse	Minor loss of, or alteration to the key characteristics or features of the landscape area.
No change	Very minor loss or change to the landscape characteristics or features of the area, compensated by landscape improvements or enhancements.
Low beneficial	Minor improvements to the key characteristics or features that outweigh any adverse landscape effects of the proposal. Removal of minor incongruous features
Medium beneficial	Notable improvements to the key landscape characteristics or features, or improvements resulting from removal of inappropriate land uses or features.
High beneficial	Major landscape implements, through the creation of a new landscape structure, or the removal of large scale inappropriate features.

Overall landscape impact is determined by combining the sensitivity of the landscape resource with the magnitude of landscape change. Professional judgment is used to determine the overall significance of impact based on these two elements.

Overall significance is classified by Substantial, Major, Moderate, Minor or Insignificant and the effects can be adverse or beneficial.

Visual Impact

Visual Sensitivity

High	Occupiers of residential properties with views affected by the development. Users of outdoor recreational facilities including rights of way where interest may be focused on the landscape.
Medium	Users of outdoor recreational facilities where the view is less important to the activities (e.g. sports pitches). People at places of work.
Low	People travelling tthrough the area in cars or on trains, or people at places of work with limited views potentially affected by the development (e.g. Industrial sites).

Visual Magnitude of Change

High Adverse	Where the scheme would cause a significant deterioration in the view.
Medium Adverse	Where the scheme would cause a noticeable deterioration in the view.
Low Adverse	Where the scheme would cause a minor deterioration in the view.
No Change	Where the scheme overall would not form a noticeable deterioration or improvement in the view.
Low Beneficial	Where the scheme would cause a minor improvement in the view.
Medium Beneficial	Where the scheme would cause a noticeable improvement in the view.
High Beneficial	Where the scheme would cause a significant improvement in the view.

Overall visual impact is determined by combining the sensitivity of the receptor with the magnitude of visual change. Professional judgment is used to determine the overall significance of impact based on these two elements.

Overall significance is classified as Substantial, Major, Moderate, Minor or Insignificant, and the effects can be adverse or beneficial.

3 EXISTING BASELINE CONDITIONS – LANDSCAPE CHARACTER AND VISUAL RESOURCES

3.1 Planning Policy Context

The Inventory of Outstanding Landscapes in Ireland, prepared by An Foras Forbatha in 1997, is the only assessment of landscape quality undertaken at a national level. Many of the areas listed were subsequently highlighted or designated in county development plans.

At a county level, Limerick County Development Plan 2011 is the statutory development control and forward planning document pertaining to the project area. Relevant landscape and visual references pertaining to the site and its surrounds are referenced in the following description of the landscape planning environment. The Plan is currently under review and references in the Limerick County Development Plan 2011-2016 is also considered.

Inventory of Outstanding Landscapes in Ireland
Limerick County Development Plan 2011 TO 2016
The Limerick County Development Plan, 2011 as amended, contains the following relevant landscape and visual references.

7.3 Landscape and Visual Amenity
7.3.2 Enhancing Tree Cover within the County
7.3.3 Landscape Assessment and Landscape Character Areas
7.3.4 Landscape Character Areas
The Plan states that the areas of scenic importance in County Limerick (as listed in 7 *are reflected in the designation of these areas for preservation. The Planning Authority will exercise a high level of control (layout, design, siting, materials used, landscaping, etc.) on developments in these areas. In such areas, site specific designs are required. It should be noted that in areas outside these delineated areas, high standards will also be required.*

7.3.4.3 Galtee Uplands
This is the most visually striking of all Limerick's uplands. The foothills are generally a farmed landscape with an enclosed field pattern and scattered farmsteads but as altitude increases open heath-land replaces the closed fields. The open upland terrain of the higher reaches of the Galtees coupled with starker colours caused by the vegetation cover of heather, provides a strong visual contrast to the

enclosed pastoral landscape below. Much of the Galtees are a candidate for Special Area of Conservation.

Objective EH O9: Galtee Uplands Landscape Character Area
It is the objective of the Council to:

a) Only permit housing development above the 230m contour line in exceptional circumstances.
b) Where housing is permitted, encourage appropriate scale and high quality design for this landscape area coupled with sensitive site location and landscaping. Respect traditional scale particularly on elevated or locally prominent sites.
c) Applications for wind energy will be open for consideration within the Galtee Uplands Landscape Character Area within the area indicated as open for consideration on map 8.4 which is delineated to the south by the road network. In the event that any wind energy application be determined to have a significant effect on a Natura 2000 site permission will be refused.
d) Ensure that forestry developments, which are subject to planning, are confined to below 300m above sea level, following consultation with the Wildlife Service and National Parks.
e) Encourage development within existing settlements.

3.2 Landscape Context

The landscape context of the existing study area is varied in character and includes agricultural land adjacent to the villages of Ballylanders, Galbally, and the town of Mitchelstown. The study area is intersected by The R662 road, which passes alongside the existing piggery. The land surrounding the site is agricultural with dairy and cattle dominating. The broad landscape character of the area is described within the 'development plan' as

This is the most visually striking of all Limerick's uplands. The foothills are generally a farmed landscape with an enclosed field pattern and scattered farmsteads but as altitude increases open heath-land replaces the closed fields. The open upland terrain of the higher reaches of the Galtees coupled with starker colours caused by the vegetation cover of heather, provides a strong visual contrast to the enclosed pastoral landscape below. Much of the Galtees are a candidate for Special Area of Conservation.

3.2.1 Landscape Designations

The Registered park and gardens of Sudbury Hall lie approximately 2 kilometres to the north-west of the proposed development. The site lies within a surface water nitrate vulnerable zone. The area is not covered by any statutory landscape designation such as Area of Outstanding Natural Beauty or Area of Great Landscape Value and there are no Sites of Special Scientific Interest or Scheduled Ancient Monuments in the vicinity of the proposed development site.

Topography

The study area which lies to the north of the Galtee hills and the site occupies a relatively level area on the edge of the Glatee hills. To the north of the site the land falls from the site and the site is at a elevation of 172 meters.

Local Landscape Character

The following assessment of local landscape character has been undertaken by Montgomery EHS, using field evaluation and analysis of maps and other published data. A description of local landscape character follows which should be considered in conjunction with the Landscape and Visual Appraisal Plan (Figure 5) and the Aerial Photograph (Figure 2).

The local landscape of the study area is influenced by a mix of pastoral land interspersed with transport routes, and urban development. The site is comprised of an existing piggery operation and agricultural land. Access is by means of the existing site entrance and a new site entrance is proposed. The site is physically and visually well enclosed to the north, east and west by mature hedgerow planting with large blocks of mature deciduous woodland coniferous trees.

The wider rural landscape to the south is comprised of a number of medium to large scale pasture fields defined by a network of predominantly hawthorn hedgerows. Scattered hedgerow trees, including ash are visually prominent in the relatively flat landscape of the area. The R662 road is along the northern boundary of the site. Beyond the R662 the landscape is more pastoral in nature with gently undulating fields of permanent pasture grazed by dairy cattle and horses, and localized small woodland blocks and copses. Potential views towards the site are screened by buffer planting along the R662.

Visual Resources

The interaction of urban fabric, vegetation and topography determines the potential for views across the study area. Receptors encompass residents, users of rights of way, open spaces, views from the R662 and people at work. In overall terms, the first two categories are generally of higher sensitivity than the latter two, although the context of individual receptors can have a bearing on sensitivity.

A series of representative viewpoints (refer to Figures 6 - 10) have been selected to illustrate the varying degrees of visibility across the study area and the potential effect on receptors. Representative viewpoints are described below.

3.3 Viewpoint A: South from the R662

Looking north on the R662 from a relatively elevated position on the R662, approximately 400 meters north of the site, a reasonably the is limited view of the existing site. The views towards the application site are prevented by well-established buffer planting along the A50 corridor.

3.4 Viewpoint B: View south from lane

Viewpoint B represents the view available from access road at the side of Patrick Ryan's

residence. A well maintained field of improved pasture can be seen bounded by the hedgerow to the north. The field is enclosed to the east by a hedgerow incorporating a row of large mature trees. A corner of the field has been fenced off to accommodate the Ryan residence. The views of the site are minimized as the existing shed blends into the landscape.

3.5 Viewpoint C: North of the Site on the R662

From the elevated vantage point of the R662 this view towards the southh west includes the extents of the piggery which are no visible. Views into the piggery are filtered by mature woodland planting adjacent to the R662, and longer views towards the site are curtailed by existing vegetation and buildings.

3.6 Viewpoint D: North West of the site

This viewpoint looks southh across the application site from the existing residences along the local road. It can be seen that the feed silo is visible through the existing site entrance. The large silo and perimeter gate are located at the north of the site, partially screening the site at point. A number of residential properties are along this road and have a patchy view of the site.

4 POTENTIALLY SIGNIFICANT EFFECTS AND MITIGATION

The Project has developed and evolved in response to baseline environmental surveys and assessments and the resulting identification of opportunities and constraints.

Analysis of local landscape character and visual resources has informed the proposed Illustrative Landscape plan (refer to Figure 3).

4.1 Landscape Effects

This section details the landscape effects arising from the proposed development of the site. These effects are considered with reference to:-

- Statutory and non-statutory landscape designations
- The appraisal of landscape character
- Individual landscape components and features

Development of the site would inevitably alter the local landscape character. However, the screening effects of the woodland to the eastern, northern and southern boundaries, and buffer planting to the R662, would result in the effects of this change being restricted beyond the site itself.

Some of the proposed development site area is currently under pasture agriculture which exhibits few distinguishing characteristics, there are however various features, including mature trees and hedgerows, which contribute to the diversity and richness of the landscape and which are worthy of retention. There are no valued landscape components within the site which would be lost to development.

It is considered that a change in use, from pasture farmland to build development, would act to extend the character and influence of the existing built piggery slightly further to the east. In the short term the introduction of an expended pig unit would result in adverse impacts on the local landscape character. The significance of these impacts would change over time as the development settles into the landscape, buildings weather and planting matures. Adverse impacts arising from the introduction of built elements within the landscape would reduce in significance.

The change of land use would result in opportunities to enhance landscape character, including providing a more appropriate transition between the built form of piggery and the wider rural landscape to the west. Whilst in the short term some new built development would be visible, in the longer term a beneficial effect would be achieved as the new woodland structure became established.

Overall the landscape impact arising from the development has been assessed as 'Minor to Moderately Adverse' in the short term. In the medium and long term, as buffer planting to the north and west site boundaries becomes established, these effects are likely to be reduced.

Table 1: Overall Landscape Effects - Summary Table

Landscape Receptor		Sensitivity	Magnitude of Change	Significance of Effect without Mitigation	Significance of Effect (upon completion i.e.	Significance of Effect (year 15 post
	Local Landscape Character	Medium	Medium	Moderate adverse	Minor to moderate adverse	Minor adverse
The Landscape Character of Derbyshire	Lowland Village Farmlands	Medium	Low to Medium	Minor to Moderate adverse	Minor adverse	Insignificant
	Riverside Meadows	Medium	Low	Minor adverse	Minor adverse	Insignificant
	Settled Farmlands	Medium to High	No change	Insignificant	Insignificant	Insignificant

4.2 Visual Effects

A visual impact assessment has been undertaken to determine the visual effects upon various receptors in the vicinity of the development. Using the previously outlined methodology, receptors with potential views of the development have been assessed in terms of sensitivity, proposed changes to the view and overall significance. Appendix 'A' provides a summary of the visual impact assessed for the visual receptors shown in Figure 16. The assessment of impact is based upon completion of the scheme assuming no plant growth for mitigation measures.

From the visual assessment a number of findings have been drawn:-

Existing properties

Views of the site from existing properties to the are considered by the four views are prevented by the elevated nature of the tree line and well established buffer planting along its length. Residences on R662 to the north and North West of the site have close views towards the site, although these are limited to some extent by the east-west orientation of the dwellings.

Public Roads

Views A and C show views of the existing site and the views are intermittent are at a reasonable distance from the site and are limited by topography and vegetation. Proposed structure planting to the eastern extents of the development would nullify the impact of the development from this point of view.

Night Time Effects

The rural location and land use of the site means that it is not perceived to be well lit at present, although some lighting is present in the vicinity of the farm yards. The effects of proposed lighting would be limited by the existing vegetation surrounding the site to the west, north and east. Proposed screen mounding and structural woodland planting to the north and eastern site boundary would limit potential lighting effects in the wider rural landscape.

4.3 Mitigation Proposals

In response to the baseline environmental surveys and assessments, a range of mitigation measures have been proposed.

The proposed structural landscape framework will be implemented as 'advance planting' and conserves and enhances the most valuable landscape components within and adjacent to the application site. As part of the Project valuable wildlife habitat and landscape fabric including existing woodland, mature trees and hedgerows would be retained. Potential effects of proposed built development would be effectively mitigated by additional native woodland, tree and hedgerow planting.

On the north and west project boundaries the existing hedgerows would be retained and a screen the site.

Built development would be offset from the edge of existing tree line to ensure their long term future within the landscape.

The proposed landscape treatment would not only help to ameliorate the effect of new development but would also serve to screen the existing site from view.

After 15 years, post construction, perimeter woodland blocks and on plot landscaping would be well established and helping to assimilate the development within the wider landscape. Appendix A provides a summary of the visual impact assessed for the visual receptors shown in Figure 5. The assessment of impact is based upon good establishment of planting, with trees potentially achieving 7 meters of growth.

5 CONCLUSION

The landscape context of the existing area is varied in character and includes existing piggery and associated residences, the rural settlements of Ryan Family, agricultureland and mature woodland. The site is currently under existing piggery and pasture agriculture, which is overall, of low sensitivity. This area has a restricted visual envelope, and the Project would provide robust screening as part of the expansion of existing woodlands and hedgerows including buffer planting and screen mounding.

A well designed and carefully laid out development could be readily accommodated within the local landscape with minimal adverse impact upon landscape character and visual resources.

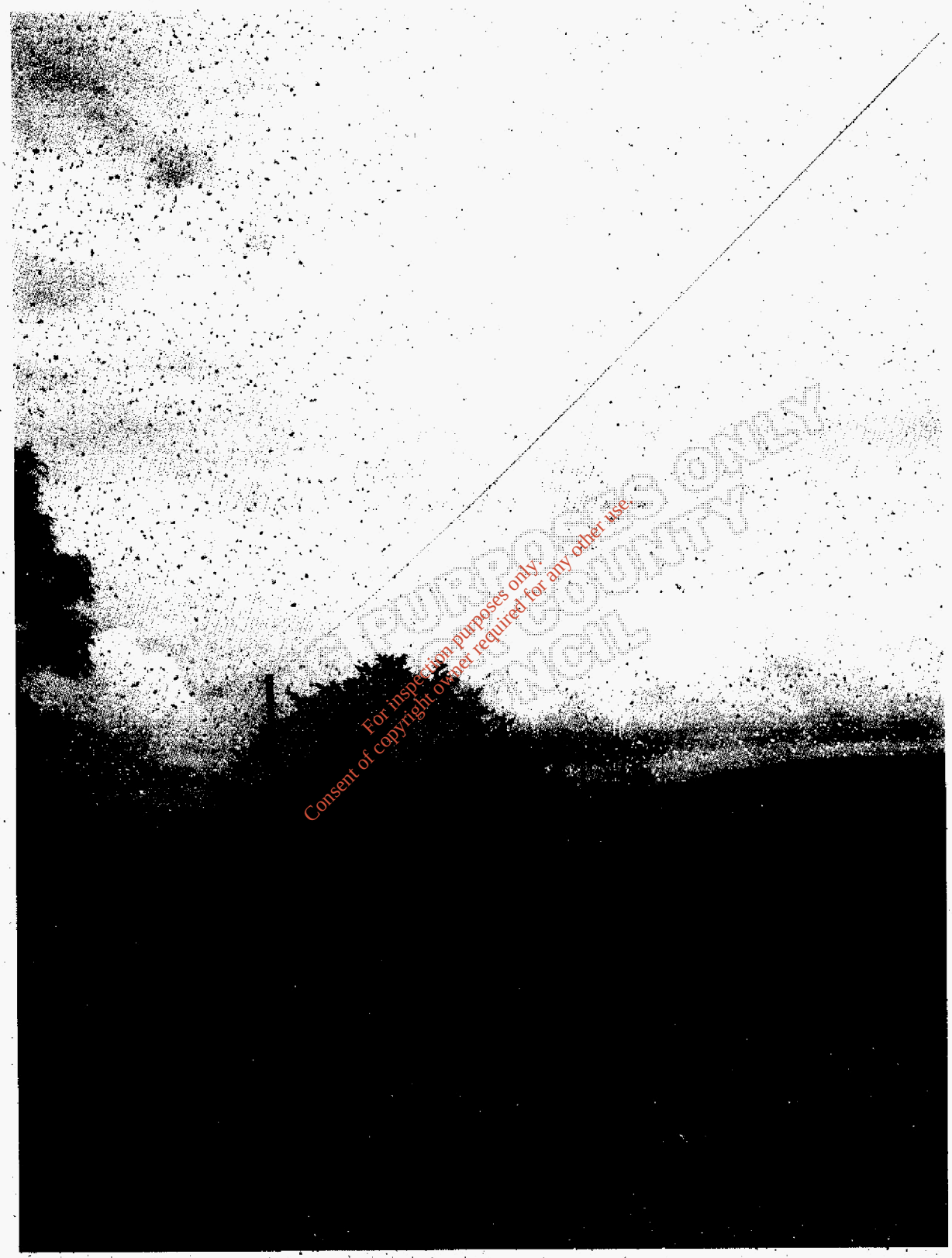
The Project as envisaged within the Illustrative Landscape Masterplan (Refer to Figure 3) would, in time, provide a new landscape structure with some perceivable benefits. Throughout the development, new planting would utilise locally native species to maximise the Project's landscape and ecological value.

Proposals for the site include buffer planting and soil mound screening to the northern and eastern site boundaries which would provide an appropriate rural edge to the project extending the effect of existing woodland.

A number of isolated properties would have views of the development. Overall visual impact, for these has been assessed within the minor to major range. With time new planting would provide an effective screen reducing the impact significantly.

6 Figures

7 View Point Photos

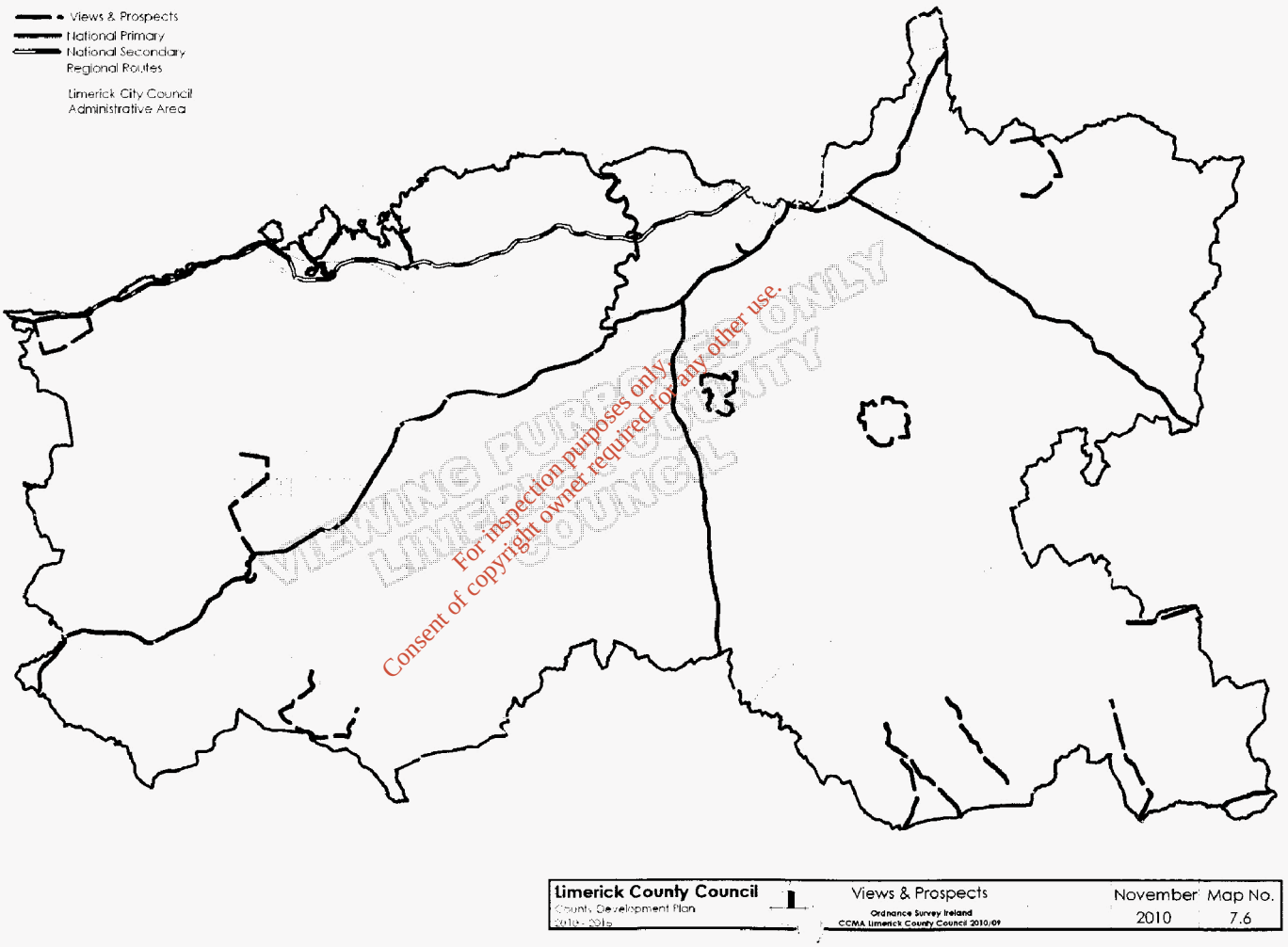


View A South of the site along the R662

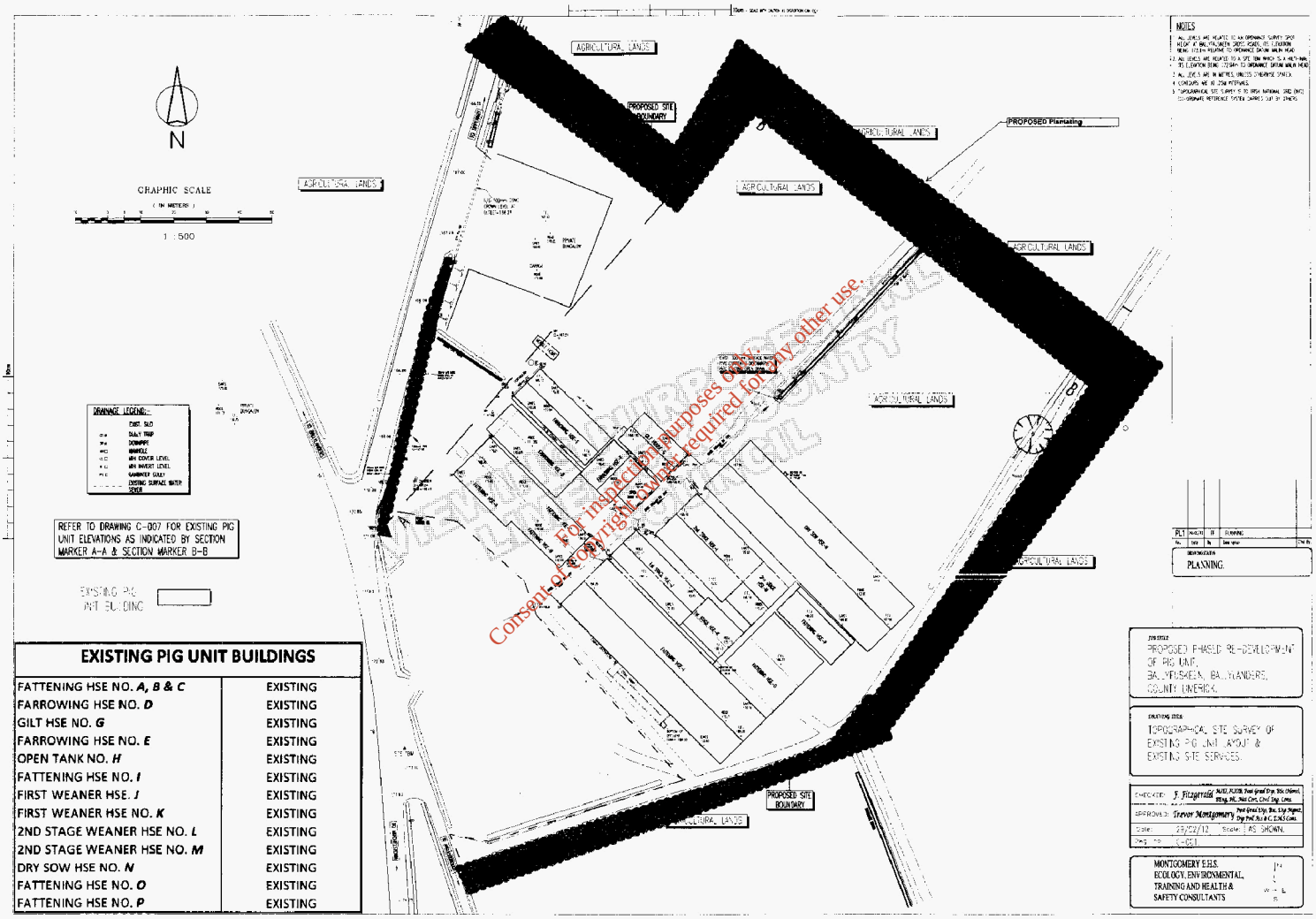
View B View from south of existing piggery with Patrick Ryan residence in the centre ground

View C View from the looking south the existing piggery is screened by the trees on the left centre ground

View D Showing a view from residences to the north of the site

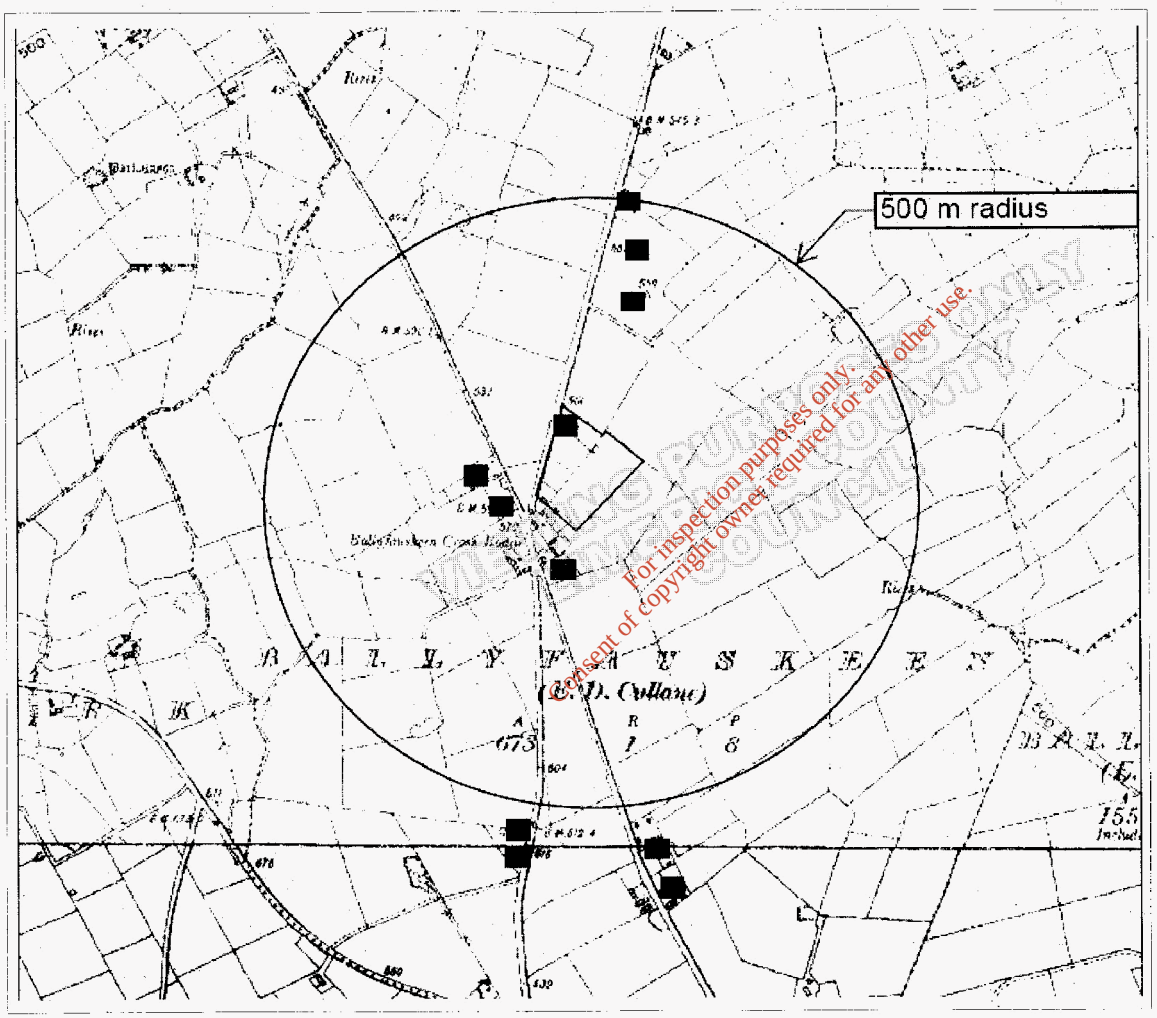


Limerick County Council	Views & Prospects	November	Map No.
County Development Plan 2010 - 2016	Ordnance Survey Ireland ©CMA Limerick County Council 2010/09	2010	7.6



EXISTING PIG UNIT BUILDINGS	
FATTENING HSE NO. *A, B & C*	EXISTING
FARROWING HSE NO. *D*	EXISTING
GILT HSE NO. *G*	EXISTING
FARROWING HSE NO. *E*	EXISTING
OPEN TANK NO. *H*	EXISTING
FATTENING HSE NO. *I*	EXISTING
FIRST WEANER HSE. *J*	EXISTING
FIRST WEANER HSE NO. *K*	EXISTING
2ND STAGE WEANER HSE NO. *L*	EXISTING
2ND STAGE WEANER HSE NO. *M*	EXISTING
DRY SOW HSE NO. *N*	EXISTING
FATTENING HSE NO. *O*	EXISTING
FATTENING HSE NO. *P*	EXISTING

Attachment 4 **nearby Residences**



Legend

Site Location

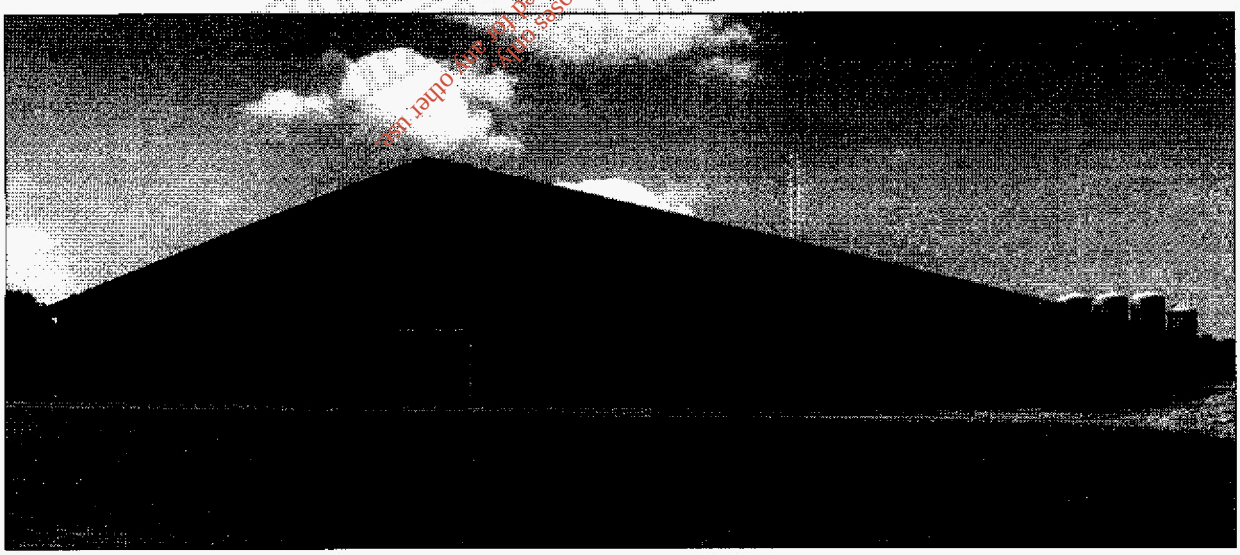
Neighboring Residences

MONTGOMERY E.H.S.

Client	Patrick Ryan
Title	Neighbouring Residences
Scale: NTS	Project No. P012 17
Figure No. Figure 18	Rev.

Attachment 5 **Heating, Ventilation, etc.**

Big Dutchman®



HelixX & MagixX

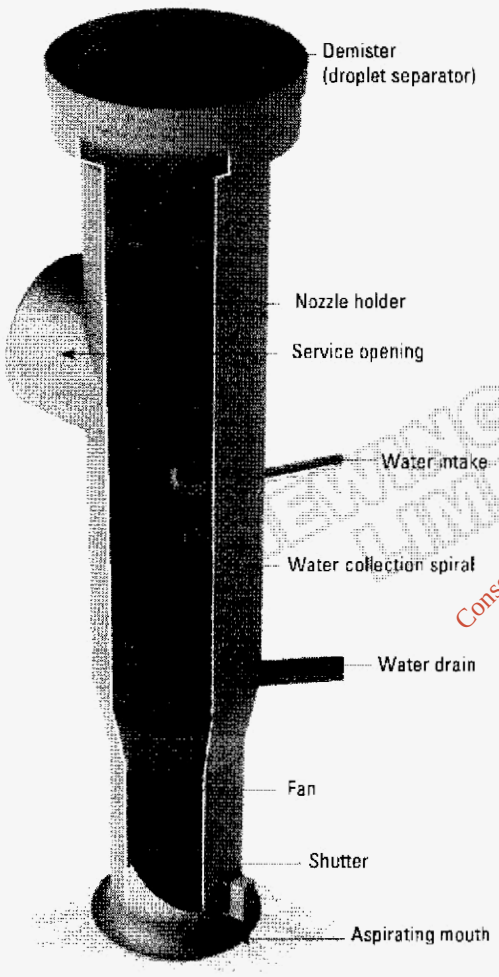
Exhaust air treatment systems for the effective reduction of emissions from pig houses

HelixX and MagixX – efficient pollution abatement facilities

Reducing emissions from livestock housing facilities will become more and more important in the future. In order to get a building permit for a pig barn, public authorities more often than not require the installation of an exhaust air cleaning system. If the barn is to be built close to a town, it is mainly odour and dust that have to be reduced. If the barn is to be built somewhere close to a biosphere worthy of protection, the main concern is to reduce ammonia emissions.
With **HelixX** and **MagixX-P** , Big Dutchman can actually offer you two exhaust air washers that fulfil the above mentioned requirements and will therefore facilitate the licence procedure for your house or will make it possible.

HelixX

single-stage exhaust air cleaning system for the reduction of dust and ammonia emissions



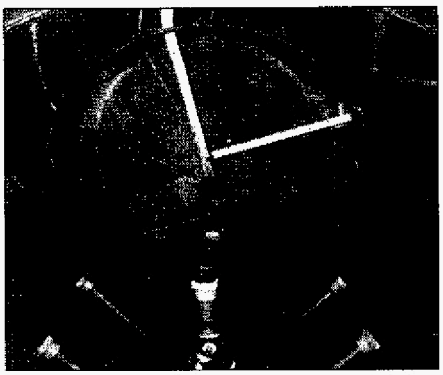
HelixX is a newly-developed compact exhaust air cleaning system for pig houses from Big Dutchman. It removes ammonia and dust from the house air. HelixX basically consists of a nozzle holder in the exhaust air channel installed on top of a water collection spiral, a fan and a central water treatment device.
Through the nozzles acidified wash water is sprayed on the exhaust air thus binding dust and ammonia. The wash water then slides down the spiral into a gain gutter from where it is then led into a central collector. The collected wash water is then processed to be reused for another cycle. All processes take place fully-automatically.

The advantages at a glance:

- ✔
- ✔
- ✔
- ✔
- ✔
- ✔
- ✔
- ✔
- ✔

; for the separation of dust, ammonia, germs and odour-carryi

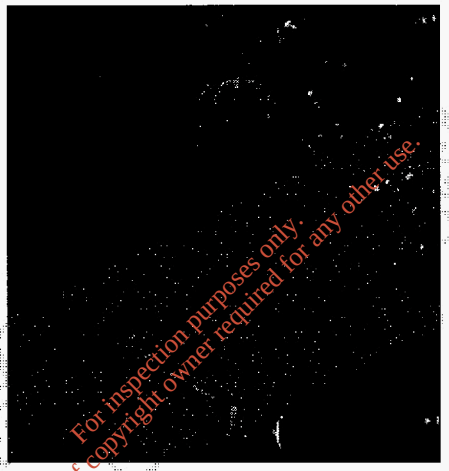
Technical solution with many advantages for the user



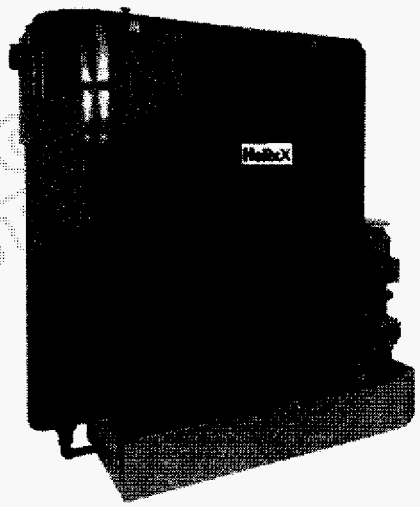
View of the demister

The stainless steel demister (fine-meshed, 10 cm strong wire netting) ensures that no aerosol leaves the exhaust air washer. The 64 nozzles of the attached nozzle holder below are arranged in such a way that the large drops collide with each other to burst into finer drops. The thus produced very fine so-called secondary mist creates a significantly larger contact surface which naturally binds more ammonia and dust.
The water collection spiral leads the wash water back to a collector – the barn stays absolutely dry. The collector tank consists of three separate chambers. In the first two chambers coarse and fine particles are separated by sedimentation. In the third chamber sulphuric acid is added if the pH value is > 3 and a defoaming agent is added.

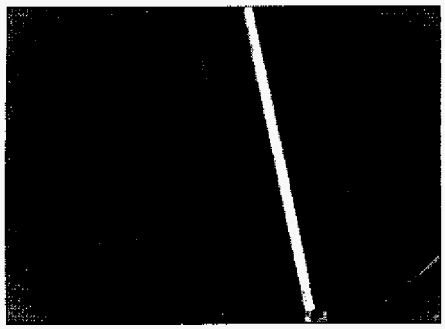
View of the nozzle holder through the large service opening



Special arrangement of the nozzles for a high separation of dust and NH_3

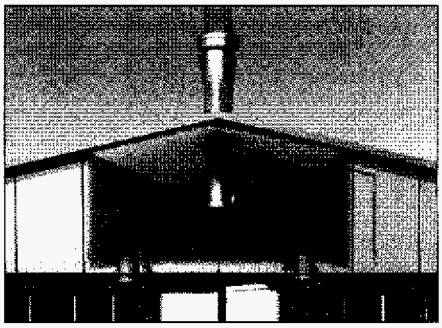


Collector for the circulating wash water



View of the spiral with water drain

With HelixX the exhaust air can be guided from the house either centrally or locally; however the focussed, centralised variant has more advantages. As in this case, it is possible to use the MultiStep®energy-saving exhaust air control principle. This means one HelixX is controlled steplessly from 0 to 100% and the other HelixX will be started up additionally at full capacity (on/off) as required.



Central air guidance - energy-saving and efficient

Results of the DLG certification measurements for HelixX

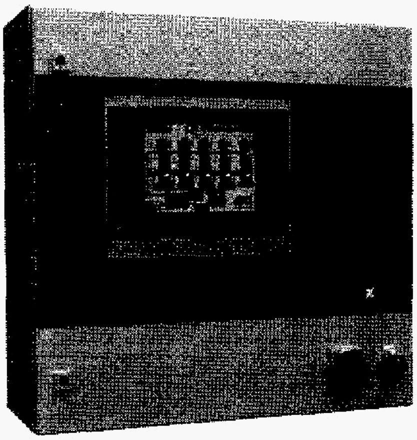
HelixX is the first local exhaust air cleaning system for use in pig production which fulfills the requirements of the DLG Signum Test for a separation rate of ammonia and dust of at least 70%!
During the certification tests, the following separation rates have been proven:

- ✔ 87.5 % of ammonia (average result of summer and winter measurements)
- ✔ 88 % of total dust (average result of summer and winter measurements)
- ✔ up to 88 % PM 10 (particle size < 10 µm)
- ✔ up to 83 % PM 2.5 (particle size < 2.5 µm)
- ✔ 47 % of odour (average result of summer and winter measurements)

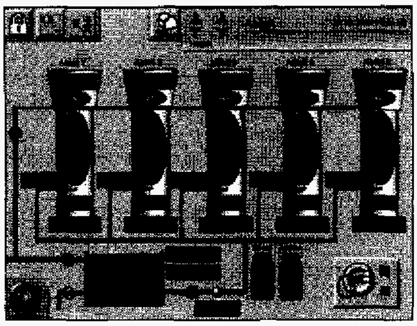
The complete DLG test results can be viewed under: *http://www.dlg-test.de/pbdocs/6050.pdf*

...ing agents from the house air

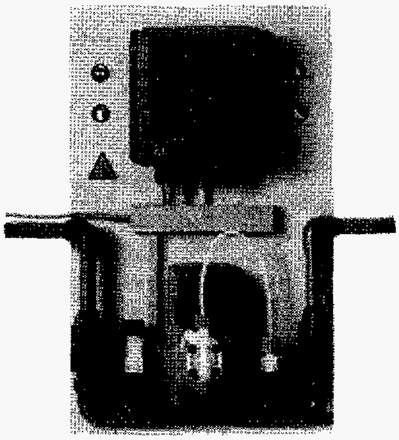
Control of the HelixX exhaust air washer

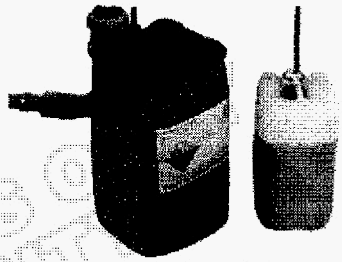


Control computer



Touch-screen





Precise acid dosing thanks to pH-value measurement

The HelixX control computer ensures the functional and operational reliability of the entire system. The farm manager can view and monitor the operating data on the graphic display.
Data can be transferred via USB at any time. If a network has been established, all data can also optionally be transferred to an external PC. Thus a convenient remote enquiry is always possible.
All recorded data can be saved on a long-term basis. A weekly or monthly creation of a farm report is also possible.

Thanks to the simple menu navigation, daily monitoring of the recorded operational data can be carried out easily at the touch-screen.
The following parameters can be displayed in detail:

- ✔ pH-value of the wash water;
- ✔ conductivity of the wash water;
- ✔ pressure increase through HelixX;
- ✔ exhaust air rate per HelixX;
- ✔ pump pressure;
- ✔ filling levels in the water treatment stage;
- ✔ elutriation rates.

The addition of acid is accomplished by an automatic dosing pump based on the pH-value of the wash water. This always ensures that the correct amount of acid is added.

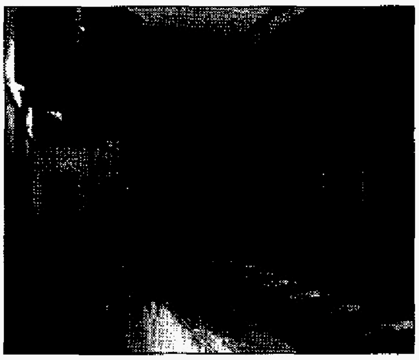
Technical specifications

Type		HelixX 1090
Ø inside* (washing zone)	mm	1090
Max. volume flow	m³/h	17500
Total height	m	approx. 5
Power costs**	kWh	52
Waste water*	l	139

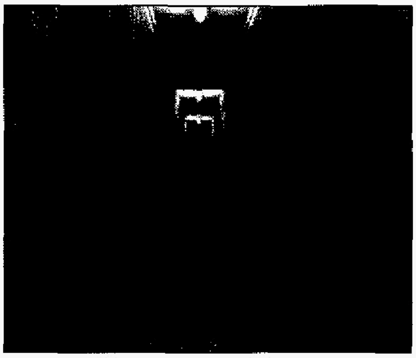
* upon request also available with Ø 820 mm
** per finishing place per year; exhaust air cleaning incl. ventilation

MagixX-P

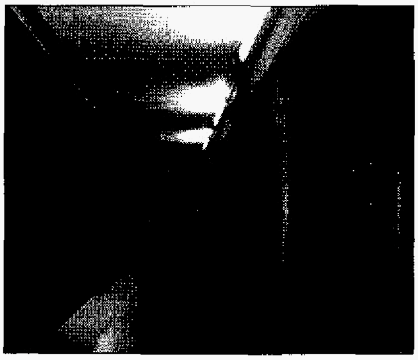
Three stage exhaust air washer for emission reduction of dust, ammonia and odour



Nozzle groups spray water on to the front of the filter bank so that dust cannot cling to the filter.

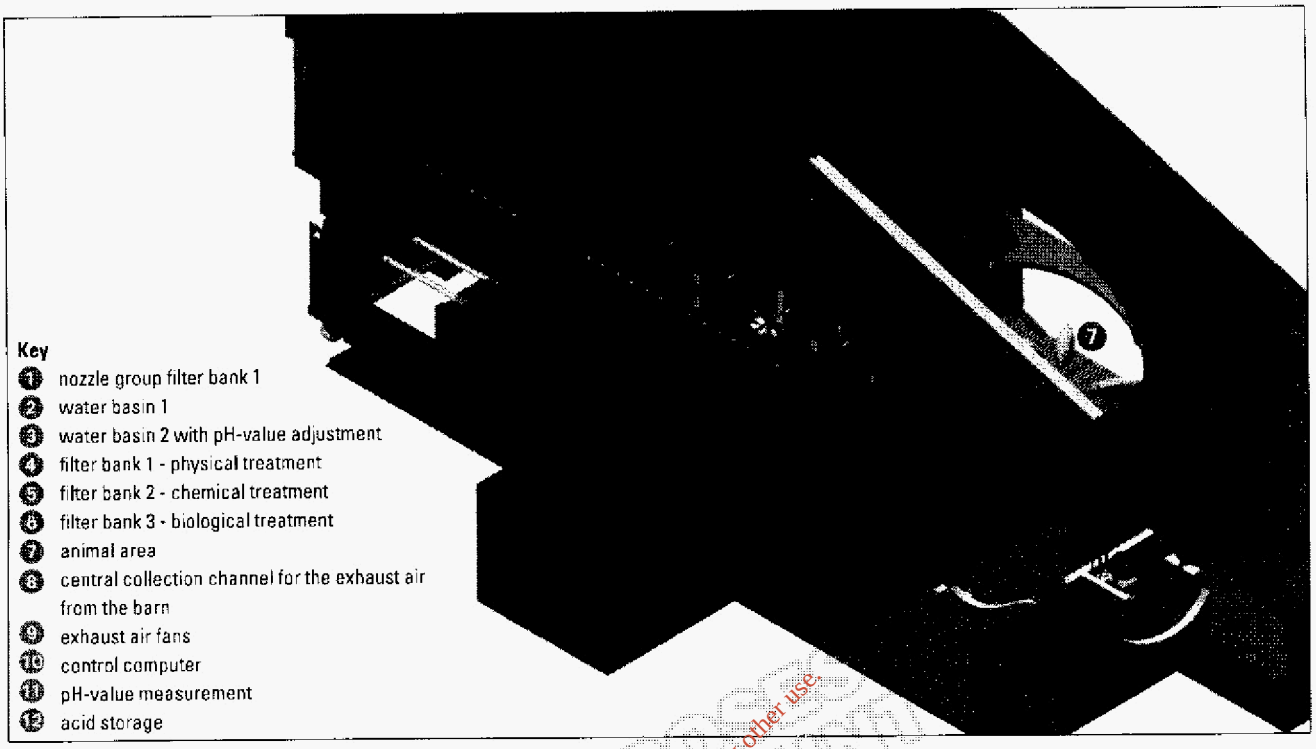


An inspection aisle lies between filter banks 1 and 2.



The third cleaning stage consists of root timber and is used for the microbial transformation of odour-carrying agents.

Functional diagram of the three-stage MagixX-P exhaust air washer

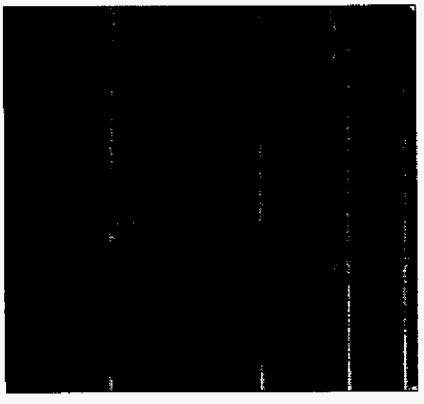


Ventilation in most houses works on the principle of negative pressure: fresh air enters the house via wall inlets, or the ceiling in the case of spray cooling. Exhaust air fans remove the used air from the house.
With MagixX-P, the exhaust air has to be collected centrally and directed through the centrally installed exhaust air washer where it is then cleaned.
To ensure an ideal distribution of the exhaust air on the entire filter bank, the entire ventilation concept should be designed from Big Dutchman components as these are well-coordinated.
MagixX-P consists of three cleaning stages. Water is sprayed through a group of nozzles (1st cleaning stage) on to the front of the first filter bank. In this way, the bank is kept from drying out and dust is prevented from being deposited. Furthermore, the air humidity increases and improves the absorptive properties of the moistened bank surface. The humidified air flows into the first filter bank, through which water flows constantly from top to bottom. Any dust is washed out into the first water basin. Since ammonia and odorous substances are attached to dust, a large proportion of these emissions are effectively filtered out of the air. The solids precipitate in the basin, which has to be emptied at regular intervals (every 3 months).

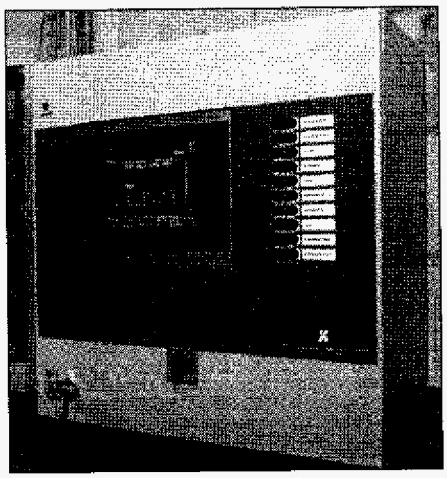
The second filter bank (2nd cleaning stage) is mainly used to separate ammonia. With sulphuric acid added, the separation of ammonia is increased significantly. In the wash water the ammonia combines chemically as ammonium sulphate. This prevents a subsequent emission of NH_3. The addition of acid is accomplished by an automatic dosing pump based on the pH-value of the wash water. The chemical substances have to be stored in a lockable service room.
The third filter bank (3rd cleaning stage) consists of root timber and is used for microbial transformation of the odour-carrying agents.

The advantages at a glance:

- ✔
- ✔
- ✔
- ✔
- ✔
- ✔
- ✔
- ✔

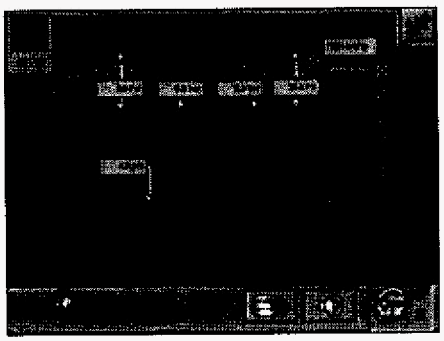


Control of the MagixX-P exhaust air washer



Control computer

The MagixX control computer ensures the functional and operational reliability of the entire system. The operating data can be accessed and monitored via the full-graphic display. Data can be transferred via USB at any time. If a network has been established, all data can also optionally be transferred to an external PC. Thus a convenient remote enquiry is always possible. All recorded data can be saved on a long-term basis. Weekly, monthly, etc. creation of a management report in .pdf or .xls format is also possible.

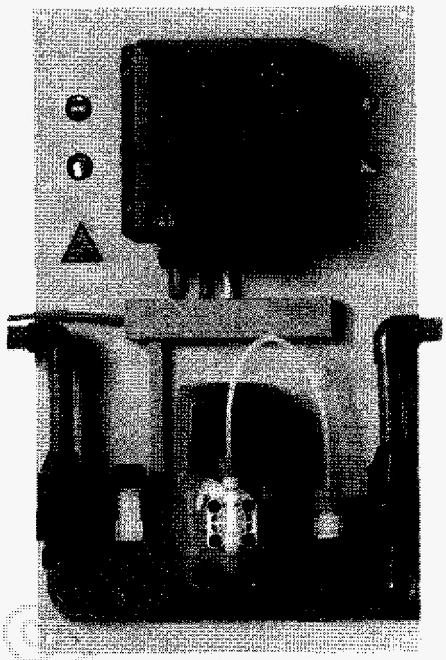


Touch-screen

Thanks to the simple menu navigation, daily monitoring of the recorded operational data can be carried out easily at the touch-screen.
The following parameters can be displayed in detail:

- ✔ pH-value of the circulating water;
- ✔ static pressure difference of the individual filter stages;
- ✔ filling level of the water basins;
- ✔ purified exhaust air volume flow;
- ✔ water and power consumption.

The addition of acid is accomplished by an automatic dosing pump based on the pH-value of the wash water. This always ensures that the correct amount of acid is added.



Precise acid dosing thanks to pH-value measurement

Results of the approval measurements for MagixX-P

Our three-stage MagixX-P exhaust air washer has been certified in Germany according to the »Cloppenburg guideline« (Leitfaden Cloppenburg) which was an approved testing method until 2004 and was transformed into an approved certification method by the German Agricultural Society (DLG) in 2005. With a separation performance for ammonia, dust and odour of 70% and more, MagixX-P has more than fulfilled the requirements of certification. In the Netherlands, MagixX-P is listed under BWL number 2006.15.V3.
During different long-term tests the system achieved the following separation results:

- ✔ up to 90 % of ammonia;
- ✔ up to 95 % of total dust;
- ✔ up to 93 % PM 10 (particle size < 10 µm)
- ✔ up to 90 % PM 2.5 (particle size < 2.5 µm)
- ✔ up to 80 % of odour (no waste air odour is perceptible in the clean gas)
- ✔ up to 90 % of germs and endotoxins.

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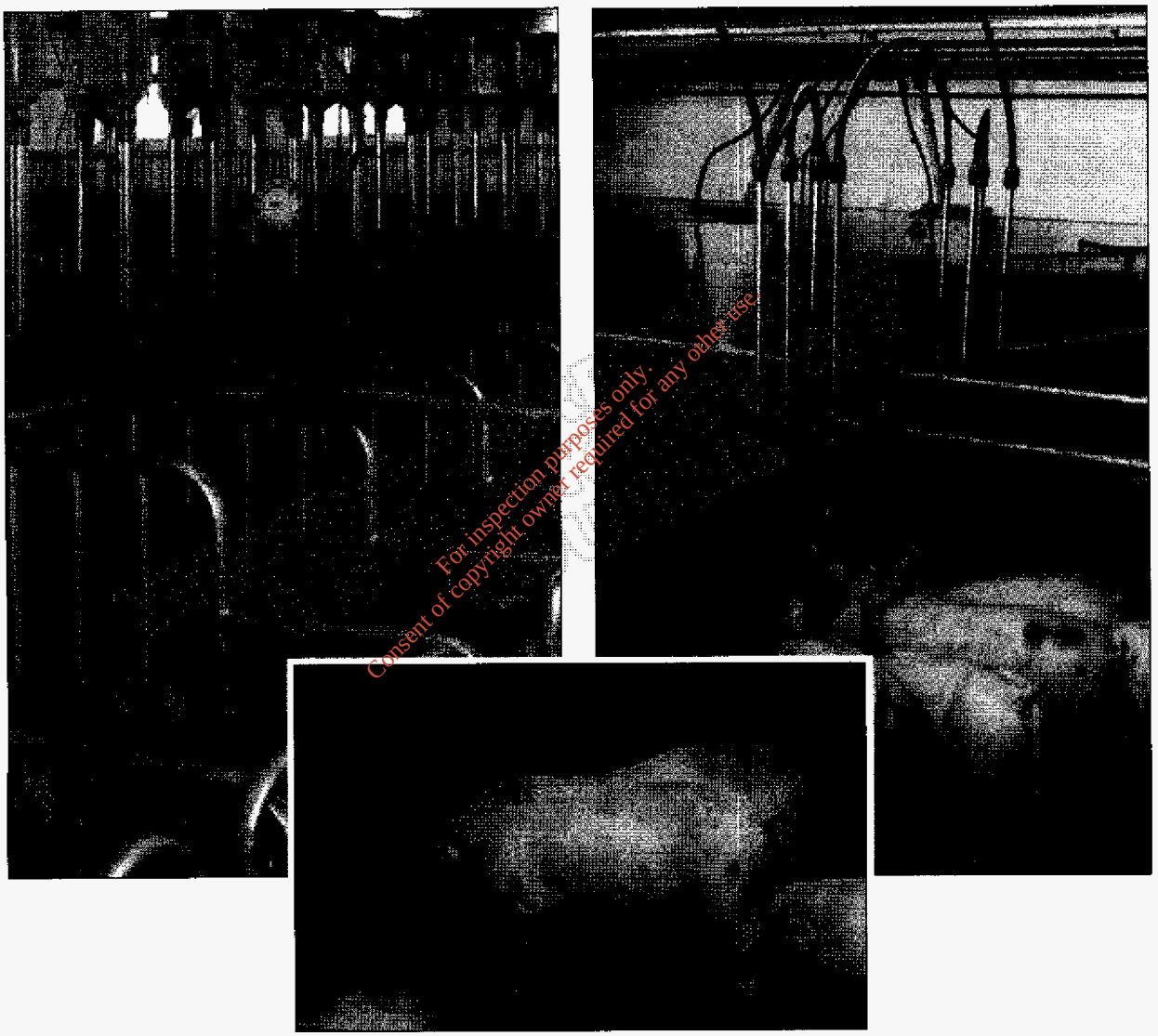
Technical details subject to change. en 6/2012

Big Dutchman®



Drinking systems

for sows, piglets and finishing pigs

Drinking systems – for a reliable supply of fresh and clean water

To achieve optimum performance, it is extremely important to provide fresh and clean drinking water. Thus a sufficient supply of clean water within easy reach of the pigs is essential. Big Dutchman satisfies all of these requirements by offering a wide range of different drinking systems, including accessories for sows, piglet rearing and finishing. In modern livestock management this might also include drinking water disinfection with chlorine dioxide.

Our product range includes:

- nipple drinkers
- drinking bowls
- water connection units
- medicators
- mobile proportioners

Nipple drinkers – provide a sufficient supply of clean drinking water

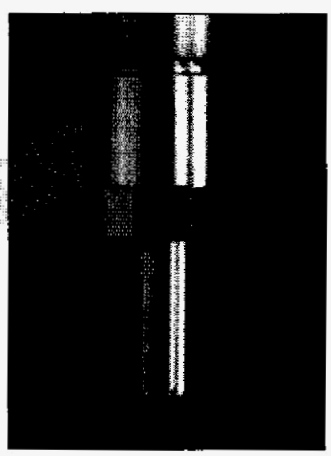
Nipple drinking systems are a cost-effective solution for clean drinking water. Their greatest advantage is the elimination of contamination. To minimize water losses, the right height is important. When drinking, the pig's head should be inclined upwards so that the water flows directly into the pig's mouth. This is why, in piglet rearing and finishing, the nipples are placed at different heights. To meet market demands with its different needs, Big Dutchman has included a variety of nipple drinkers and the corresponding tubes in its product range.

Included are:

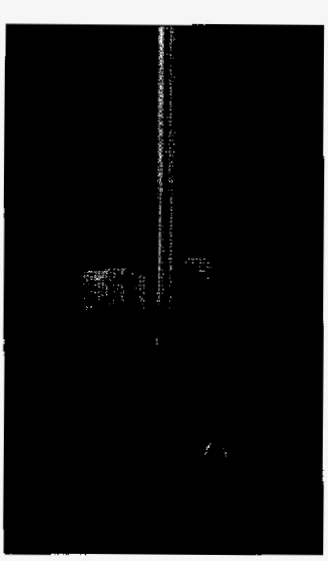
- high pressure nipples for sows;
- high and low pressure nipples for piglets;
- high and low pressure nipples for final finishing;
- vacuum trough floating tubes.

Optionally available are drinking tubes with guard. The guard keeps the pigs from getting hurt at the nipple drinker, for example when stalling out finishing pigs at slaughter weight.

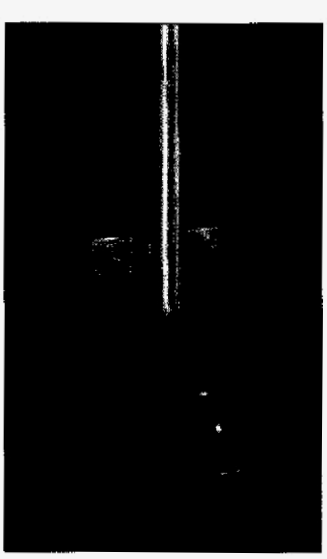
Moistening nipple for sows
- high pressure



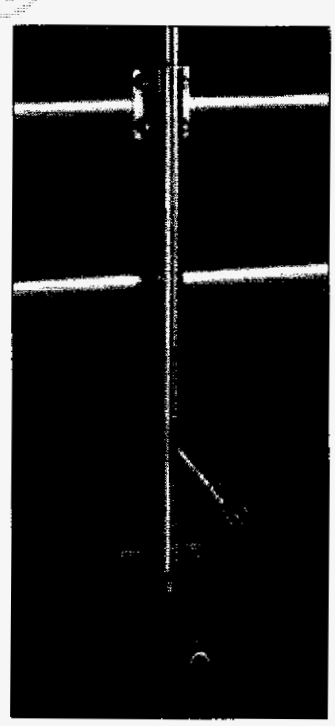
Nipple drinker for sows
- high pressure



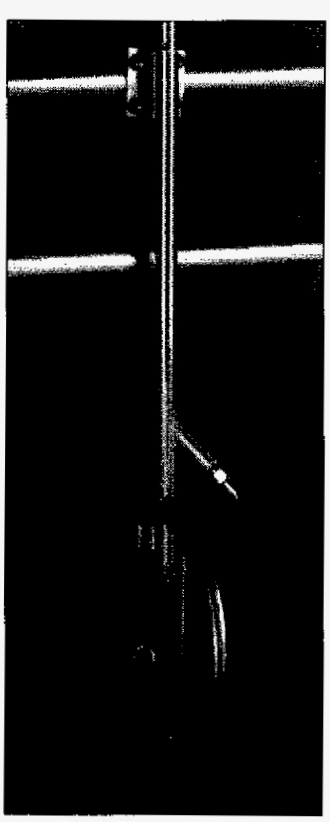
Nipple drinker for piglets
- high and low pressure
- easy to use from the first day onwards



Nipple drinker for finishing pigs with bite ball
- high pressure
- minimized water wastage as pigs have to take the entire nipple into their mouth in order to drink

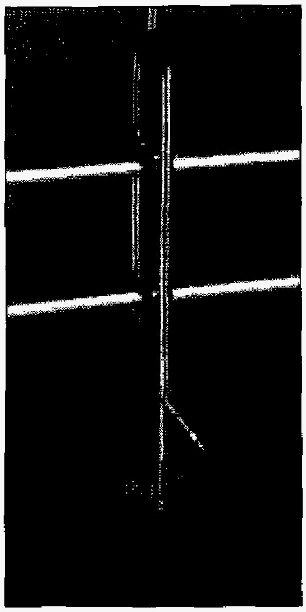


Nipple drinker for finishing pigs
- high and low pressure
- with two nipples at different heights
- for pre-finishing and final finishing

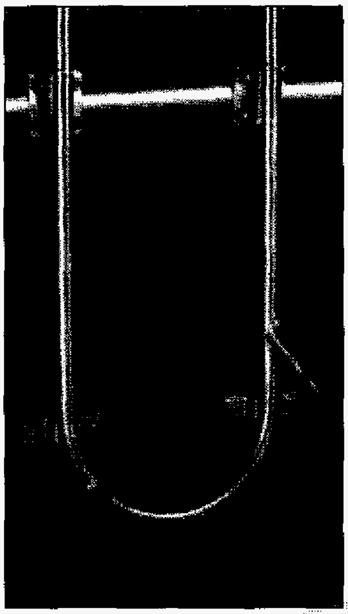


Nipple drinker with guard for finishing pigs

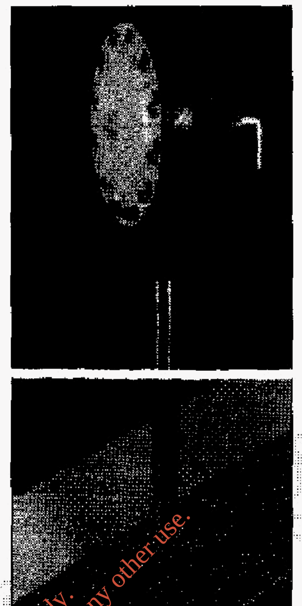
In addition, Big Dutchman offers a drinker tube for the supply of 2 pens with a total of 4 nipple drinkers (2 in each pen) as another economic solution.
All nipple drinkers as well as the drinker tubes consist of stainless steel and therefore have a long service life. In order to prevent deposits of vitamins or minerals in the drinker tube, Big Dutchman furthermore offers a circulation tube for water circulation in their product range. This permits the operator to simply flush all pipelines after use of medication. The circulation tube can also be used for drinking bowls.



Drinker tube for simultaneous supply of 2 pens



Drinker tube with water circulation



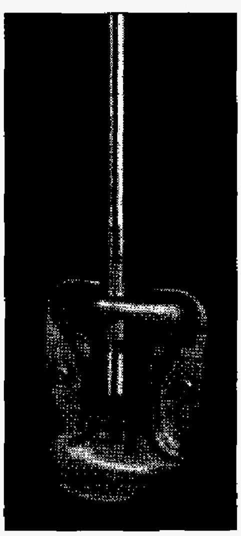
Vacuum trough flooding tube for longitudinal troughs
high pressure

Big Dutchman also offers a vacuum trough flooding tube which is used for sows in crates or piglet rearing houses. Water is automatically replenished when the pigs drink from the trough. The longer the row of troughs (max. 25 m 82 ft per trough flooding tube) the more economic is this type of drinking system.

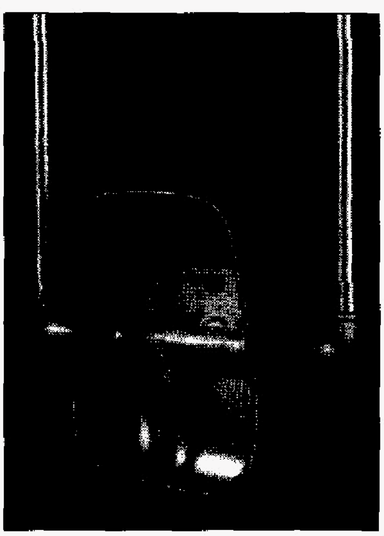
Drinking bowls – minimal water loss and easy to use

Drinking bowls have few water losses and are accepted very well by the animals. When the animal is drinking, its head disappears in the bowl due to the lateral collar. This also significantly reduces water losses and spillage soiling. The drinking bowls are especially appropriate for suckling pigs, as the pigs can see the water and therefore readily accept this drinker in their first days of life. When placed low enough in the farrowing pen, the drinking bowls can be used by both sows and piglets.

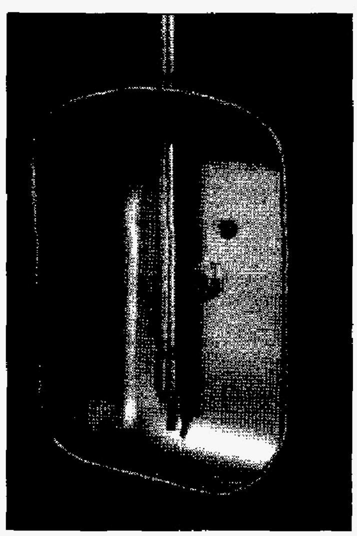
- Drinking bowls made of stainless steel for suckling pigs;
- Drinking bowls made of stainless steel for piglet rearing;
- Drinking bowls made of stainless steel for finishing;
- Drinking bowls made of enamelled cast iron for farrowing pens.



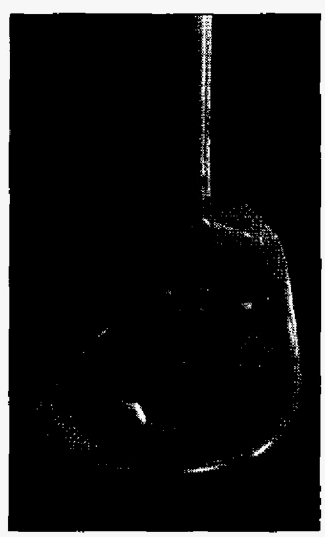
Drinking bowl for suckling pigs



Drinking bowl with water circulation for weaners up to 35 kg (77 lb)



Drinking bowl for finishing



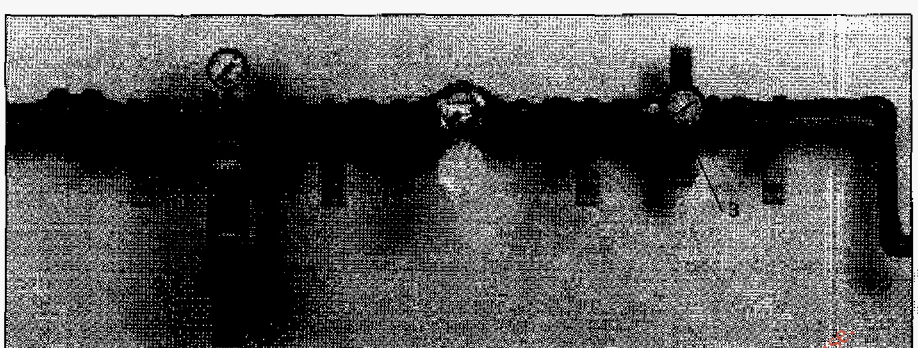
Drinking bowl with valve guard for farrowing pens

Water connection unit – very flexible, custom-made delivery

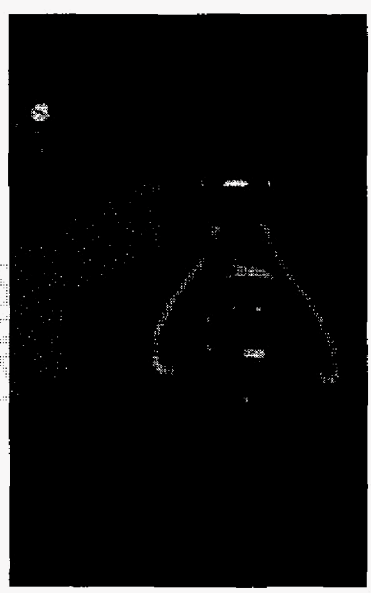
Today, a complete drinking system comes not only with the actual drinker but also with a water connection unit. This unit is installed between the main water supply and the house water line and can consist of different modules that can be put together according to ***your*** needs:

1 filter with manometer to avoid blockage at the nipples – optional reversible flow filter in the event of a high degree of water contamination
2 water meter for measuring water consumption – optional electronic for connection to a computer
3 pressure reducer with filter – for the protection of excessive supply pressure (max. 3 bar, 43.5 lb/in²)
4 back pressure valve – for medication use in ring circuits
5 fresh water conduit
6 bypass with 3 ball valves for connection to a medicator

Ball valve for separate drawing-off of water



Water connection units can be delivered with nominal widths of 3/4", 1" and 1 1/2".



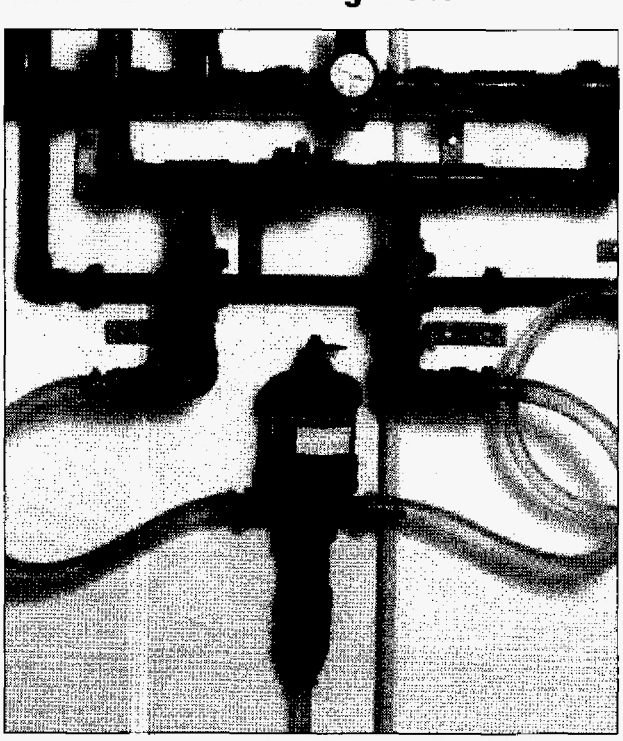
Use of a medicator in a ring circuit

BD-water connection units have the following features:

- compact design for a problem-free installation even in small service rooms or the feed kitchen;
- easy assembly and easy to extend as all parts are screwed together, no sticking joints;
- all connecting elements are made of PVC for optimum corrosion protection.

Medicator – for precise metering of medicines via the drinking water

The medicator is installed in the water circuit and meters the correct amount of vitamines and medicines into the drinking water. The amount to be metered out can be precisely adjusted, as the compounds are admitted to the drinking system in proportion to the actual water consumption. Mixing of the respective compound and water takes place at the homogeniser outlet. Thus the motor does not come into contact with the medication used, i.e. no blockages occur, longer service life.
Water-soluble substances are extracted directly out of their original packing.



Water distribution with medicator

Advantages of medicators

- precise metering for all flow rates;
- high dosing range and high flow rates;
- long service life and high operational safety due to use of high-quality materials (low sensitivity against a broad spectrum of chemicals) when cleaned regularly;
- selective spare parts kits for rapid replacement of wearing parts.

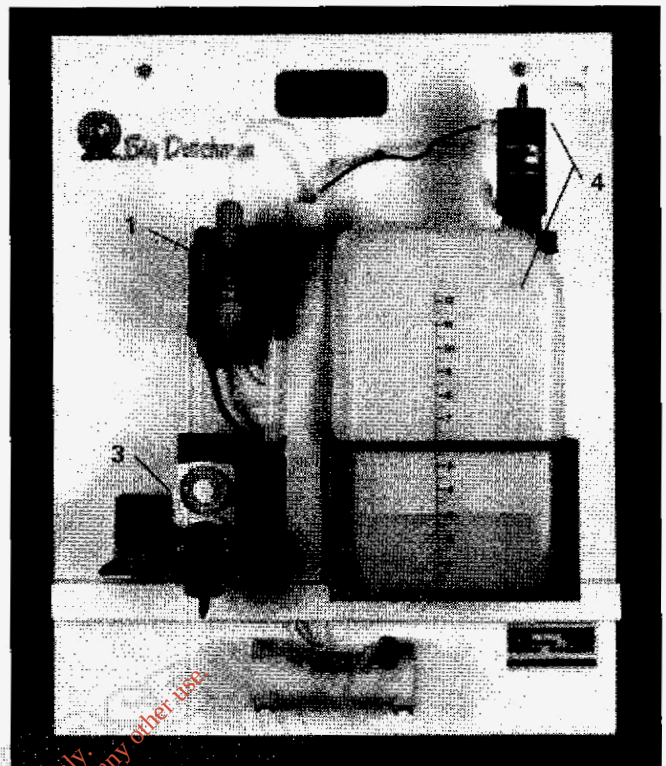
Mobile proportioner for dosing additives into the water supply

The broad Big Dutchman product range also includes a new proportioner. The proportioner is used to meter small quantities of liquid additives into the drinking water line.

The proportioner consists of:

1 acid-proof diaphragm pump
2 flow meter
3 timer
4 canister (12.5 l; 3.3 gal) with agitator

To allow for mobile use of the proportioning unit, the individual components are mounted to a plastic plate.



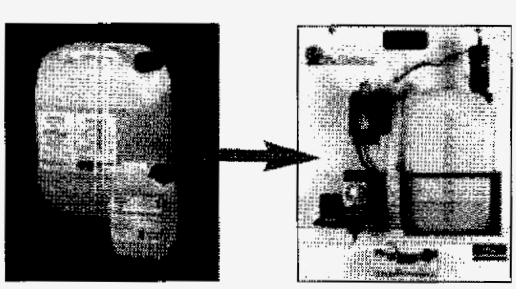
The advantages at a glance:

- compact design;
- easy-to-assemble;
- corrosion-proof.

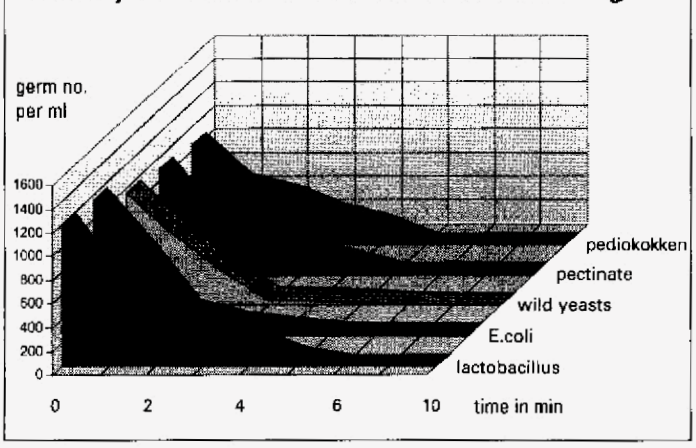
The agitator is equipped with an integrated suction lance, which is connected to the pump. It can be operated at different speeds and can be switched on or off by means of a timer.

Hygiene management with ClO_2 for better drinking water quality

More safety in the house through drinking water with a low germ count! This is no problem with chlorine dioxide (ClO_2) which is an approved disinfectant for drinking water treatment approved by the German Drinking Water Ordinance and the WHO.
Compared to traditional disinfectants, chlorine dioxide does not have an effect gap. This means it acts as reliable disinfectant against bacteria, spore-forming substances, algae and viruses. It kills quickly (see diagram) and does not have a corrosive effect if used as recommended.
Chlorine dioxide is easy to handle. The disinfection system can be incorporated without much technical effort by the operator. Two components are mixed together to form ClO_2 and are then dosed out into the drinking water over a proportioner and pump.

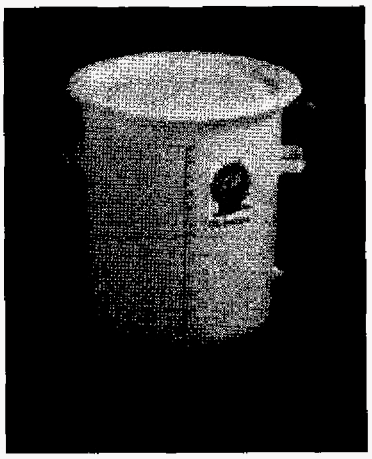


Efficiency of chlorine dioxide at a concentration of 0.2 mg/l



The most important advantages at a glance:

- reliably eliminates biofilm in water pipelines and helps to prevent the formation of new biofilm;
- binds iron and manganese => increased operational reliability of drinking nipples;
- only low concentration required: 0.2–0.4 mg ClO_2/l;
- good water-solubility;
- long-lasting effect prevents secondary infections;
- removes taste and odour from the drinking water thus improving the water intake;
- easy to use;
- low costs => approx. 0.25 €/1000 l water.



Mixing tank for medicines, 60 l

If the water supply inside the barn is designed as a circular system, it is possible to install a mixing tank for medicines with a circulation pump. The additive and water are then mixed already with the correct mixing ratio in the tank and are then pumped directly into the barn.

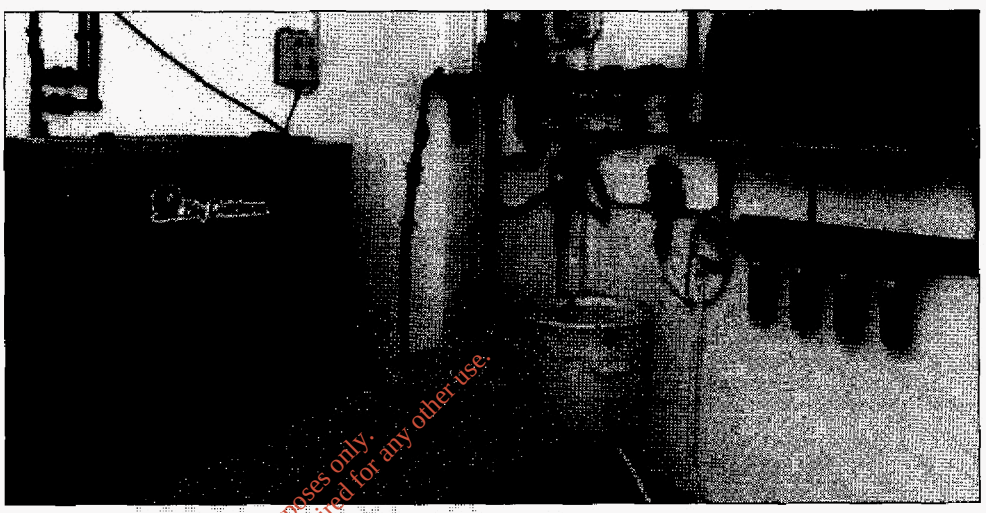
In case of pulverized or viscous meterials, a mixing tank with circulation pump (code no. 30-61-3105) should be used.

Specifications of medicators

Type*	Medicator 1	Medicator 2
Code no.	30-62-3540	30-61-3245
Flow rate (l/h, gal/h)	10-2500 2.6-660.5	9-3400 2.4-898.3
Dosing range (%)	0.2 - 2.0	0.2 - 5.0
Working pressure (bar, lb/in²)	0.3 - 6.0 4.35-87	

* Other types available upon request
Always observe the operating and maintenance instructions.

Mixing tank for medicines made of stainless steel with circulation pump



Service room with small and large mixing tank for medicines

Standard values, installation and planning aid

	Live weight		Water demand*		Height drinking bowl**		Height nipple drinker 45°***		Flow rate****	
	kg	lb	l; gal/animal and day		mm	in	mm	in	l/min	gal/min
Suckling pigs	< 9	20	0.7-1.0	0.2-0.3	80-105	3.1-4.1	150	5.9	0.4-0.5	0.10-1.15
Weaners	< 29	64	1.0-3.0	0.3-0.8	80-105	3.1-4.1	250-550	9.8-21.0	0.5-0.7	0.15-0.19
Finishing pigs	< 50	110	3.0-6.0	0.8-1.6	250-300	9.8-11.8	450-600	17.7-23.6	0.6-1.0	0.16-0.30
	50-80	110-176	5.0-8.5	1.3-2.3	250-300	9.8-11.8	650-700	25.6-27.6	0.8-1.2	0.21-0.32
	80-120	176-265	8.5-11.0	2.3-3.0	250-300	9.8-11.8	650-700	25.6-27.6	1.5-1.8	0.40-0.48
Sows										
- barren/during early pregnancy			8.0-12	2.1-3.2	350-400	13.8-15.7	900	35.4	1.5-1.8	0.40-0.48
- point-of-farrow			10.0-15	2.7-4.0	350-400	13.8-15.7	900	35.4	1.5-1.8	0.40-0.48
- suckling			15+1.5/piglet	4+0.4/piglet			900	35.4	2.5-3.0	2.66-0.80
Boar			12.0-15	3.2-4.0	350-400	13.8-15.7	900	35.4	1.0-1.5	0.30-0.40

* These figures are standard values that can vary depending on the climate zone or the type of management.
** upper rim of bowl
*** lower edge of nipple
**** The flow rate of a drinker depends on the water pressure, the pipe cross section and the valve opening. For some drinkers, the flow rate can be adjusted – especially with high pressure nipples. Please observe the operating instructions.

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Technical details subtect to change. e 4/2009

Big Dutchman®

DryRapid

The versatile dry feed conveying system

DR 850 and DR 1500 – efficient pipe conveying systems f

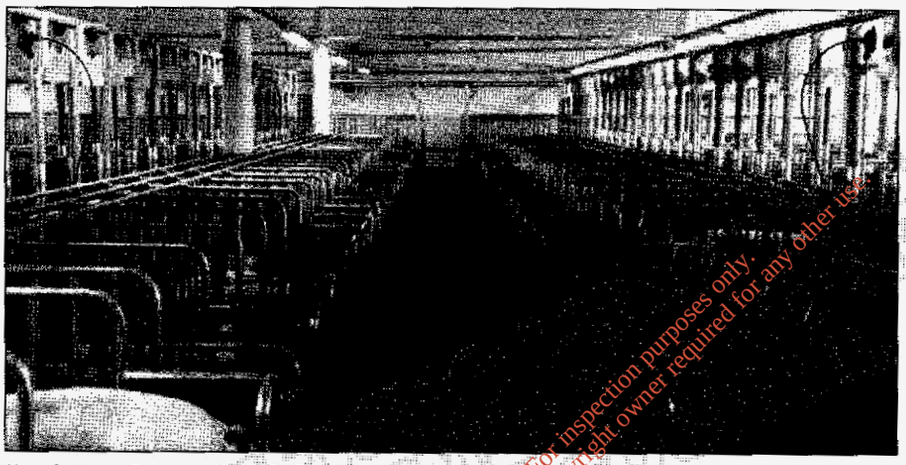
Wherever dry feed in form of meal, crumbs or pellets has to be transported and distributed on a pig farm, Big Dutchman's DryRapid is the ideal feed transport system, from the silo discharge to the feed trough. This efficient pipe conveying system is available as DR 850 with a conveying capacity of approx. 850 kg/h or as DR 1500 with a capacity of approx. 1500 kg/h. DryRapid is designed in modular units and can therefore be used in all areas of pig production.

Versatile possibilities of DryRapid

For sow production:
- ✔ individual sow feeding with volume dispensers
- ✔ supplies the ESF system CallMatic 2 for pregnant sows in group management

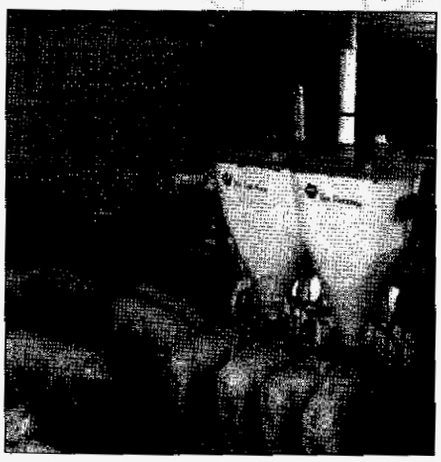
For piglet rearing:
- ✔ supplies all types of self-feeders
- ✔ supplies the computer-controlled dry feeding systems (EcoMatic*pro*, DryExact*pro*)

For finishing pigs:
- ✔ supplies all types of self-feeders
- ✔ supplies the computer-controlled dry feeding systems (EcoMatic*pro*, DryExact*pro*)

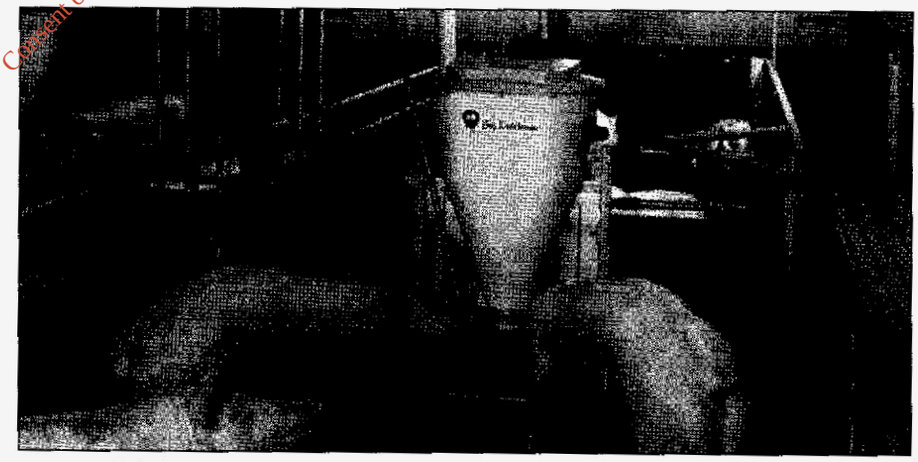


Use of volume dispensers for individual feeding of sows in stalls

CallMatic 2 for pregnant sows in group management



Supply of PigNic-Jumbo feeders by means of DryExact*pro* for piglet rearing



Supply of PigNic feeders in a finishing pen

Advantages

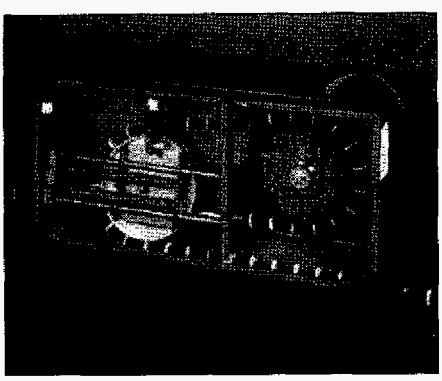
✔ ✔ ✔ ✔ ✔ ✔

or dry feed allowing versatile use for feeding of sows, piglets

Main components of the DryRapid conveying system

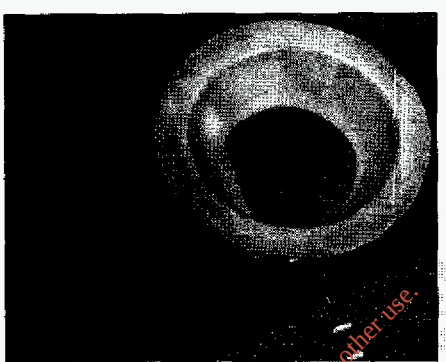
Drive unit

- ✔ compact design, can be installed either inside or outside the house;
- ✔ stainless steel casing;
- ✔ can be equipped with a tensioning device (optional);
- ✔ drive unit XXL available for longer transport distances;
- ✔ weather guard for outside installation.



Feed hopper

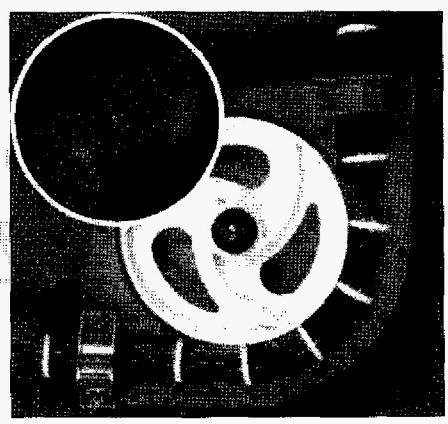
- ✔ made of stainless steel, installed in the house or directly beneath the silo;
- ✔ conveying capacity can be steplessly adjusted by means of a shut-off;
- ✔ available as one or two-track hopper if two circuits are to be supplied;



- ✔ available with mechanical or motor-driven forced feed and forced return for uniform filling of the feed pipe, preventing a system overflow.

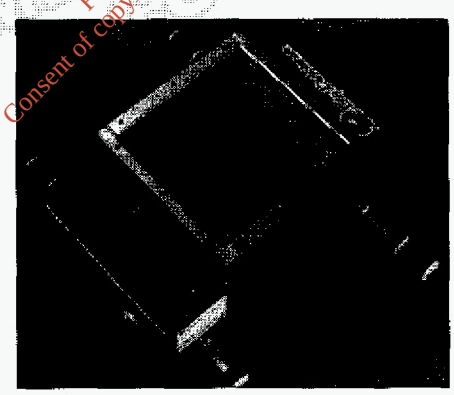
90° corner

- ✔ the corner housing is available in stainless steel or plastic; a transparent cover is also available;
- ✔ all corners are corrosion-proof and therefore well-suited for outside installation;
- ✔ ball-bearing corner wheel made of glass fibre reinforced plastic or cast steel for reduced friction.



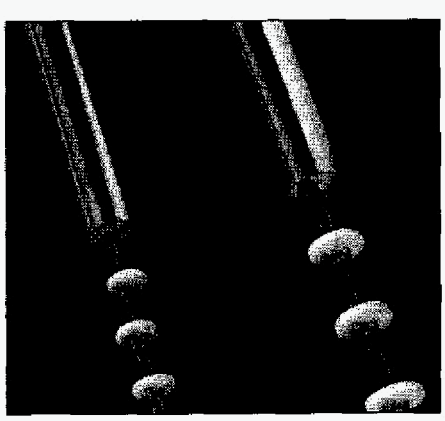
Conveyor pipe with conveying chain

- ✔ pipe made of 1.25 / 1.5 mm galvanized steel with an outside diameter of 45 / 60 mm, also available in stainless steel;
- ✔ chain made of specially-hardened steel;
- ✔ the driving plates are made of high-grade plastic available with the following diameters: 30 and 35 mm, 42 and 49 mm;
- ✔ applied to the chain with a distance of 51 / 71 mm so that the chain links remain free and only very small quantities of feed are entrained.



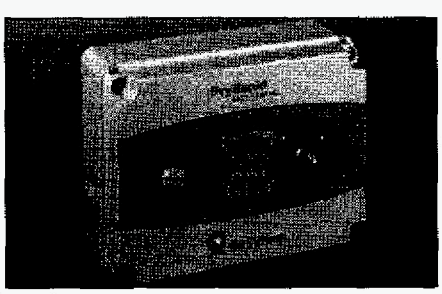
Sensor

- ✔ switches the DryRapid off when the last volume dispenser is completed or feeder is filled.



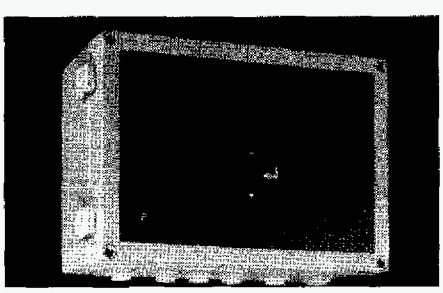
DryRapid EasyControl

- ✔ On/Off control of dry feeding system; optional timer available.



DryRapid Controller

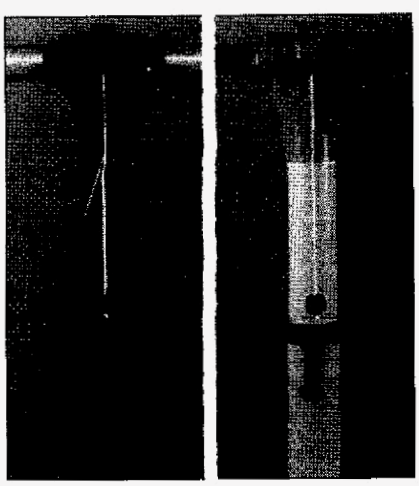
- ✔ controls additional functions such as the soaking system, lighting, the proportioner for small quantities and release of the volume dispensers.



and finishing pigs

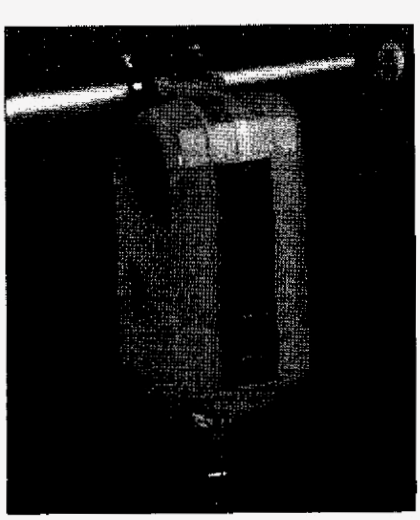
Outlet with shut-off

- ✔ for supply of all types of self-feeders;
- ✔ made of plastic, with shut-off, available in two colours for easy distinction between two feed circuits;
- ✔ available with rigid or telescopic drop-pipe, also available as transparent version.



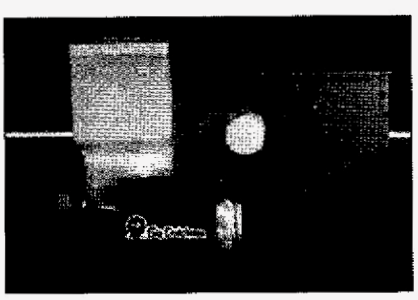
Volume dispenser

- ✔ stepless adjustment for individual feeding of sows;
- ✔ transparent hopper with a capacity of 6 or 8 litres;
- ✔ minimum quantity less than 1 litre;
- ✔ easy-to-read adjustment scale in litres and kilograms;
- ✔ large lateral openings for easy addition of feed additives and easy cleaning;
- ✔ clip for data sheet –> important information about the sow is immediately available.



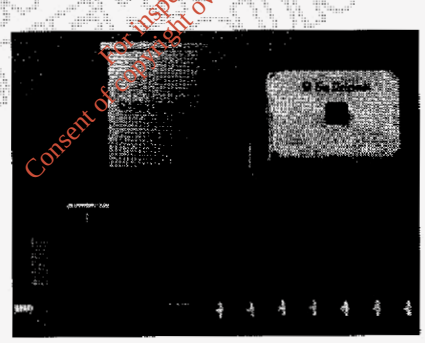
Medicine proportioners

- ✔ for precise addition of pulverized feed additives into the dry feed;
- ✔ for immediate, cost-effective treatment of sick pigs;
- ✔ can easily be retrofitted in existing pipe feeding systems.



1. MediPut

- ✔ large dosing range from 0.25 to 10 kg additive per ton of feed;
- ✔ precise dosing even in cases of fluctuating flow rates;
- ✔ no dosing in case of an empty silo or feed bridging.



2. Proportioner for small quantities

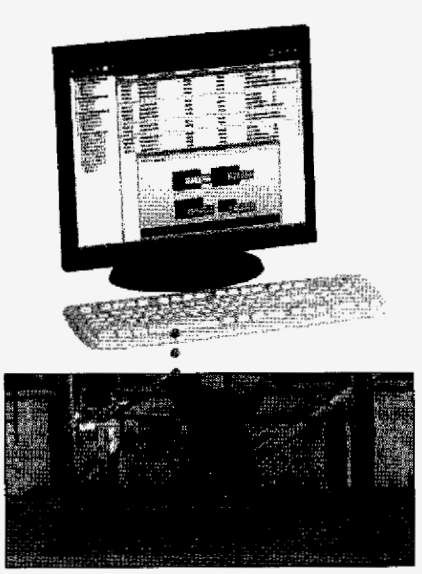
- ✔ the metering capacity ranges from 400 to 8000 g/h –> time-dependent dosing.

Volume dispenser release

- ✔ manual release by means of winch with crank handle;
- ✔ automatic release station for up to 100 volume dispensers.

SiloCheck

- ✔ PC program registers and monitors the content of up to 60 silos;
- ✔ alarm if filling level falls below the set minimum;
- ✔ display of the total consumption per silo;
- ✔ maximum network range: 1000 m with cable or 2000 m wireless;
- ✔ linking of the electronic weigh bars of the individual silos which can stand in different locations.



Technical specifications of DryRapid

	DryRapid 850	DryRapid 1500
Drive capacity	1.5 kW	1.5 kW
Chain speed	27 m/min	27 m/min
Conveying capacity*	870 kg/h**	1580 kg/h**
Max. conveying length	300 m (standard)	300 m (standard)
with 4 corners	500 m (drive unit XXL)	500 m (drive unit XXL)

* at a filling level of 66 % and a feed density of 650 kg/m³

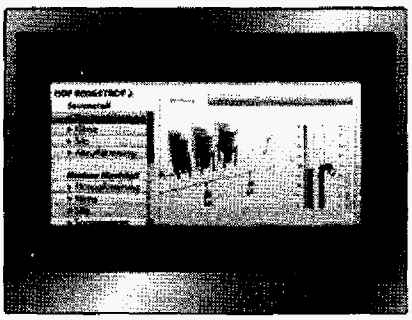
** in case of forced in-feed, the capacity may vary depending on the feed characteristics

BigFarmNet technology

The modern control and management system

BigFarmNet is a completely new developed control and management system from Big Dutchman for any type of pig production. The software is very user-friendly and has the same user-interface for all applications, no matter whether it concerns production management, climate control or data analysis. This means in future you will only need one single software to control, for example, your dry feeding system, the house climate and analyze production results.

BigFarmNet allows you to link all computers on your farm. This way, all data is always accessible no matter which computer is used to enter data or make changes, be it in the farm office or in the barn.



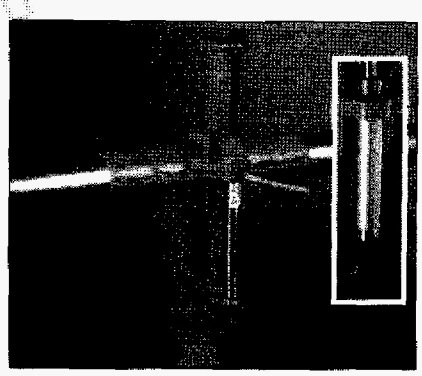
The innovative control and management system has the following advantages:

- ✔ data has to be entered on one computer only –> data on all other linked computers is automatically synchronized;
- ✔ several PCs can be used parallel, for example in the barn and in the farm manager's home office;
- ✔ if the farm consists of several production locations, they can conveniently be managed and monitored from the farm manager's home office;
- ✔ alarm messages are displayed on all linked computers on the farm, which allows the farm manager to react immediately;
- ✔ concise and identical user interface on all PCs for easy handling;
- ✔ graphic images of all buildings and installed equipment provide a better overview.

Compuer-controlled dry feeding with BigFarmNet

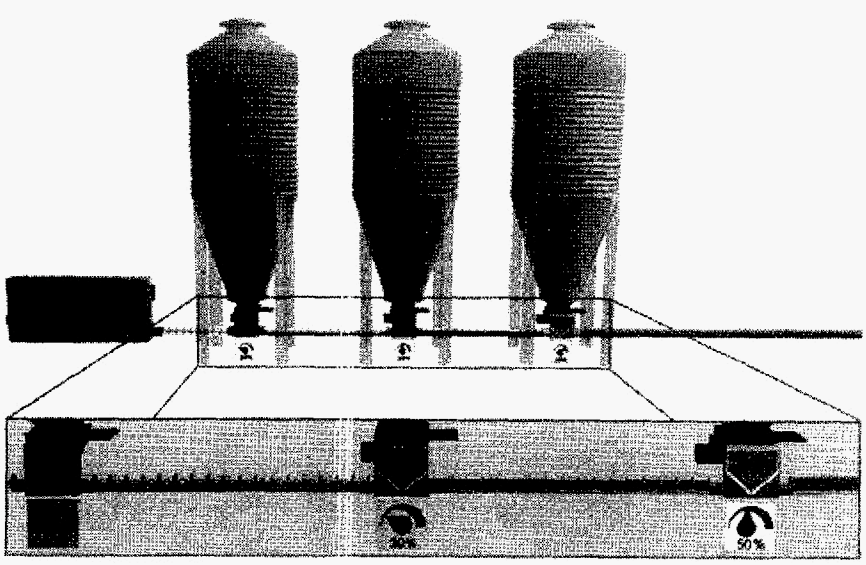
With **EcoMatic***pro* and **DryExact***pro*, Big Dutchman offers you two computer-controlled dry feeding systems, which ideally comply with the requirements of modern pig feeding.
Both systems allow you to supply feed at the individual valves either by volume or weight.

The pneumatic feed valve ensures that every feeder receives the right feed quantity. The feed valve is available with central or local control.



EcoMatic*pro* – volume-based feed proportioning

EcoMatic*pro* supplies the individual feed components based on volume quantities, which means that no mixer is required.
The feed hoppers beneath the silos are equipped with a frequency-controlled auger, which measures the set quantity of the individual ingredients into the transport pipe of the DryRapid. The individual components then mix inside the transport pipe so that the correct recipe is supplied to the feed valves. This compuer-controlled dry feeding system operates without a distribution unit and without a feed kitchen and is therefore simple and economic. The individual components have to be metered only once.



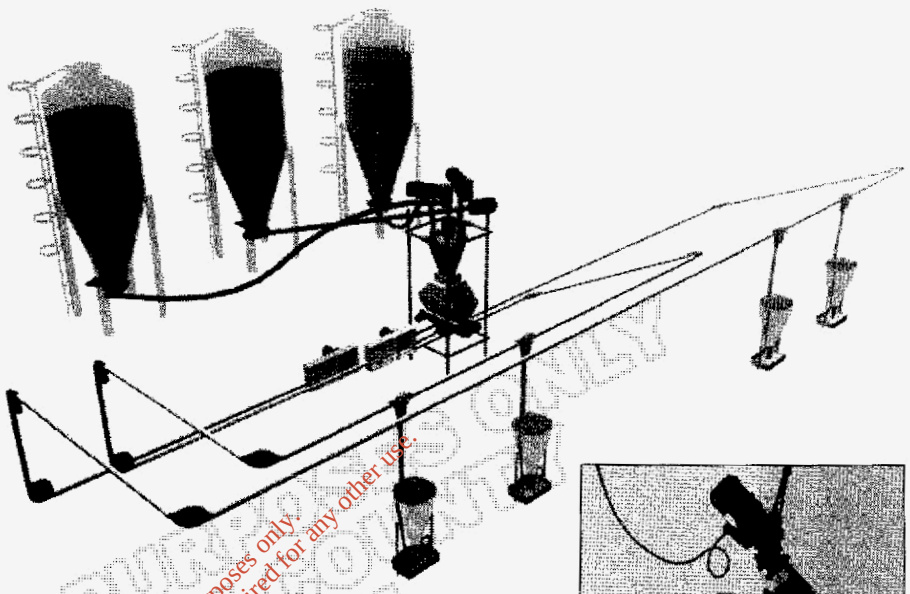
DryExact*pro* – weight-based feed dosing

The **DryExact***pro* system works with a weighed mixer that has a volume of 70 litres. This makes it possible to supply an individual feed mix to every valve with a very high mixing quality and accuracy.

Of course, the system also permits to carry out phase feeding at the individual valves.
The DryExact*pro* can also be upgraded to operate as sensor-controlled feeding system. In this case, each hopper is equipped with a sensor which informs the computer of an empty hopper when the feeding starts.

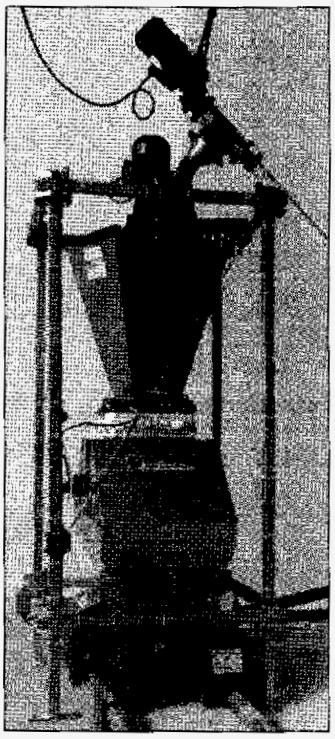
Mode of operation

Upon start-up of the feeding, the weighed mixer is filled with different ingredients (up to 14 different ingredients are possible). The finished mix drops into a hopper with funnel or, in case of a two-line circuit, into a hopper (tilting box) which supplies both circuits alternately with feed.
The DR 1500 transports the mix to the respective feed valve while the next recipe is being prepared. A sensor inside the feed hopper verifies that the hopper is empty to prevent an intermixing of the individual feed recipes. These process steps are repeated until all valves have been supplied with feed.



Operational diagram of a DryExact*pro* with two feed circuits

DryExact*pro* feed kitchen: 2 systems with one feed circuit each



DryExact*pro* with 2 feed circuits

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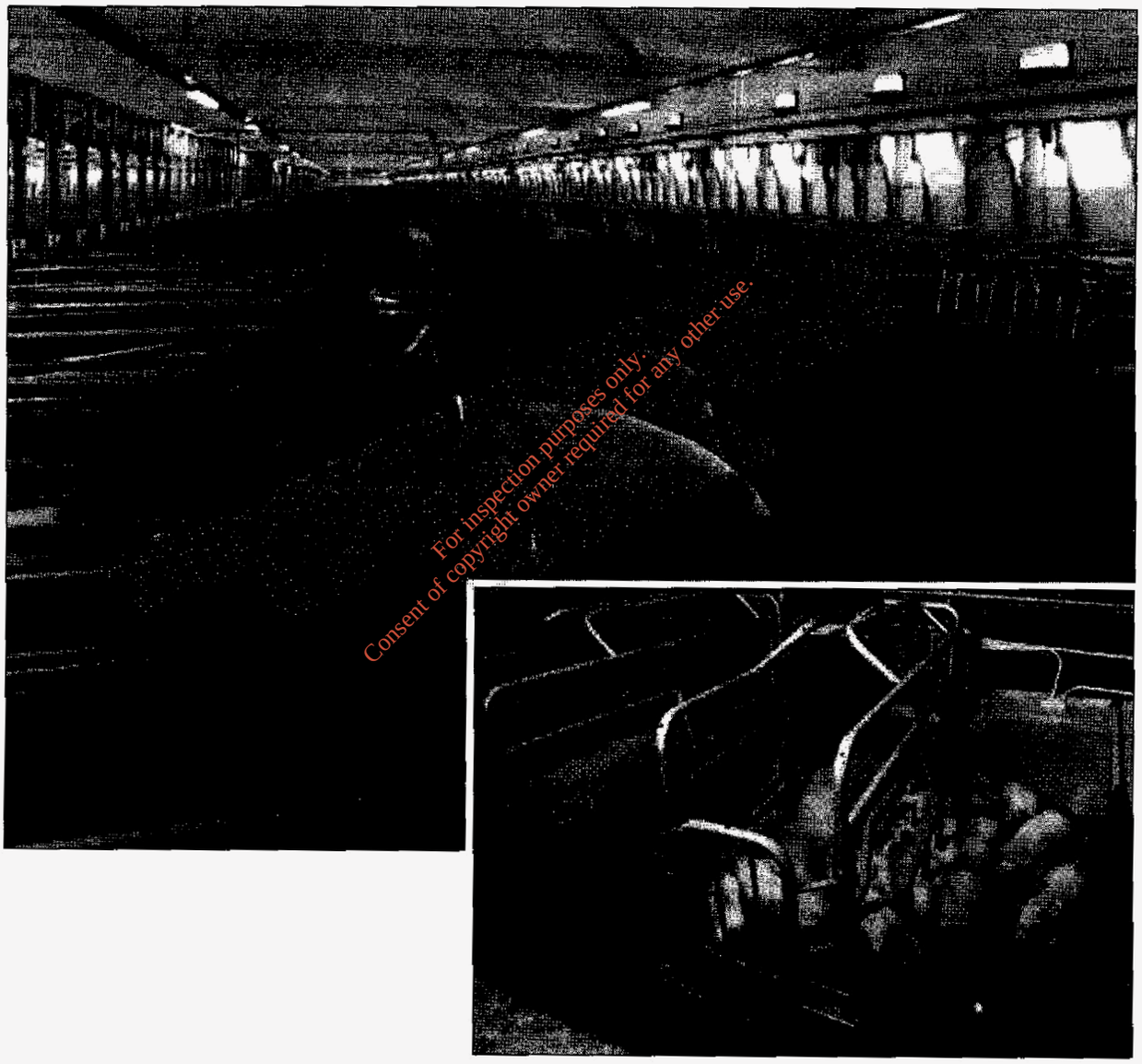


Sow Management

Modern housing and feeding systems

Successful sow management – but how?

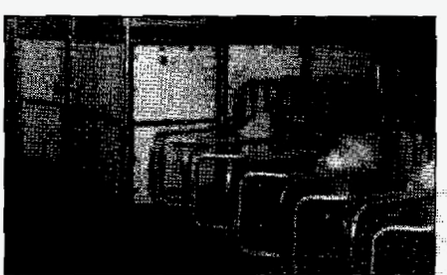
To achieve an increase of sow performance to more than 25 weaners per year is not easy but it is possible. By supplying the right housing and feeding systems, Big Dutchman is able to provide you with the technical conditions. In modern sow management, the right housing equipment plays an important role for economic success.
Big Dutchman is able to deliver the right equipment tailor-made to the requirements of every customer. Whether it is a new house or refurbishment of existing houses, working with you, our specialists will develop an optimum concept for successful piglet production.

Service centre

with separate boar pen and sow stalls

The service centre is the starting point for the production of healthy and vital piglets. In order to achieve optimum boar performance, the sows have to be in top condition. In addition, the room should be light and the boar should be allowed to stimulate the sows.
A confined space may reduce the sows' reaction to the boar.

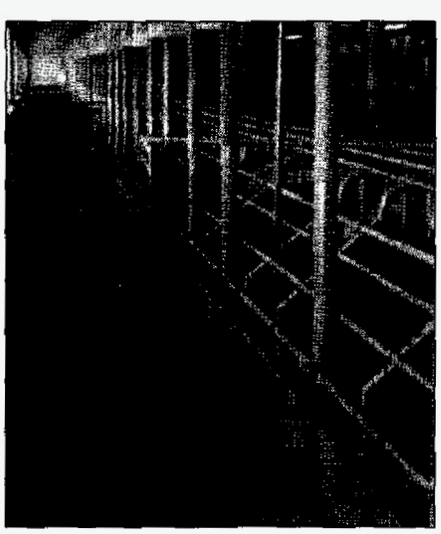
Service centre with separate boar pen and stalls



Sows in stalls can easily be monitored and controlled individually. There is no aggression during feeding. Artificial insemination can easily be carried out. Where group management is practiced, some separate sow stalls should be available for individual housing of sows which return to heat, for example.

The BD stall is available with a P-door (available up to 750 mm width). Both door parts can be opened individually to the outside and to the inside which facilitates insemination.
360° rotating stainless steel feet make for easy mounting on the concrete slatted floor and provide corrosion protection.
If a raised stainless steel trough is installed, the sows can rest their heads underneath the trough. In addition, thorough cleaning is made much easier.
If a boar-restraining door is used, the boar can be retained in the inspection aisle to stimulate the sows during insemination.

Stall with P-door for trouble-free insemination



Raised stainless steel trough

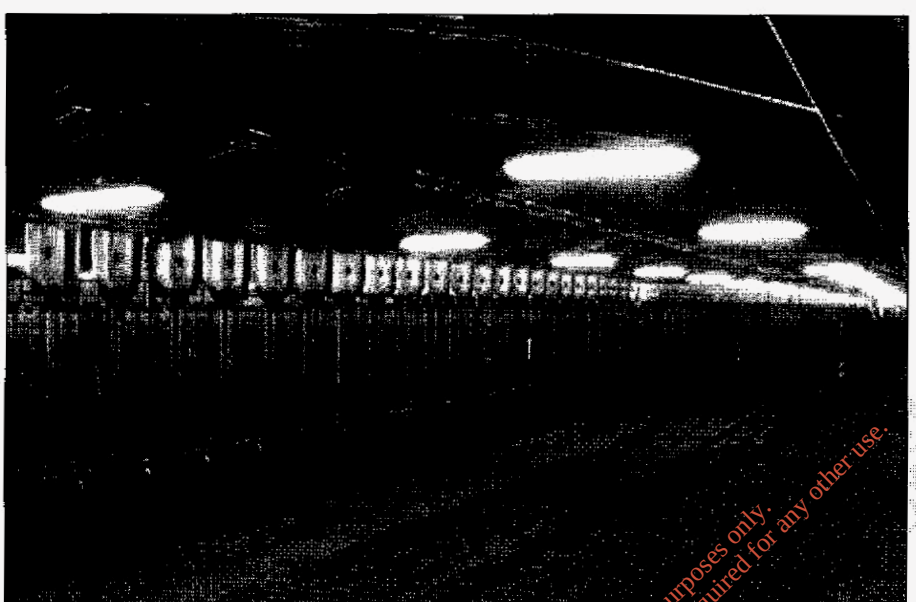
Boar-restraining door to lock the boar in place

Waiting area

Modern housing systems for pregnant sows

Group housing of sows improves their well-being as well as their constitution. There are several different housing and feeding systems available from Big Dutchman. The most important thing is that the selected system fits your farm's individual requirements. Let our experts advise you to find the best solution for you.

1. Group pens – a simple and economic solution



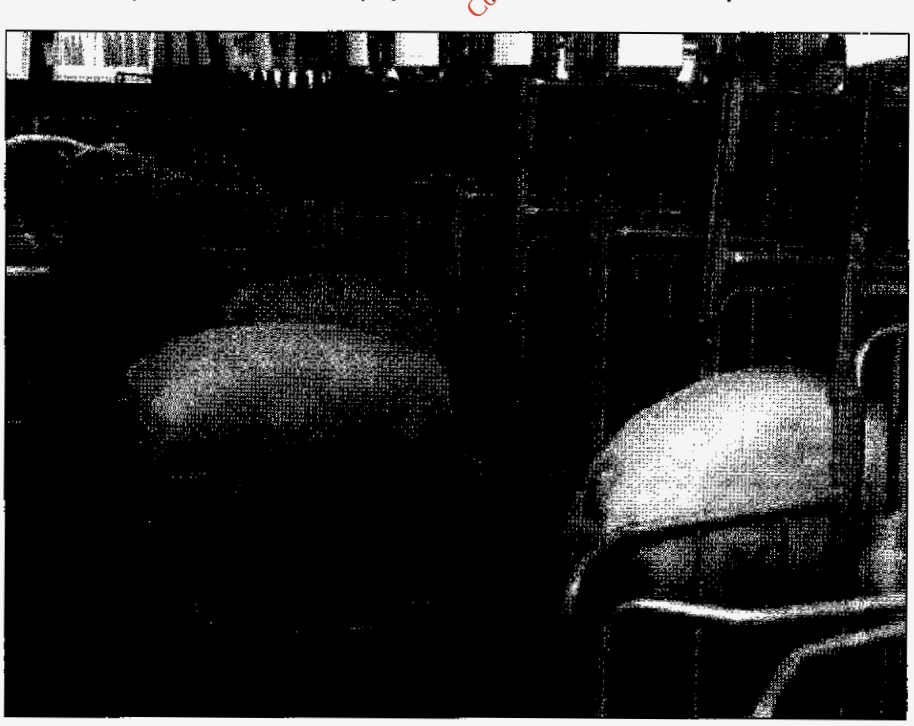
View into a waitung area with group pens

Advantages

- ✔
- ✔
- ✔
- ✔
- ✔
- ✔
- ✔

2. Group housing with single stalls

In case of single stalls the door behind the sow is opened/closed manually by the service personnel. When the stall is open the sows can freely move around in their group.



View into a waiting area with single stalls

Advantages

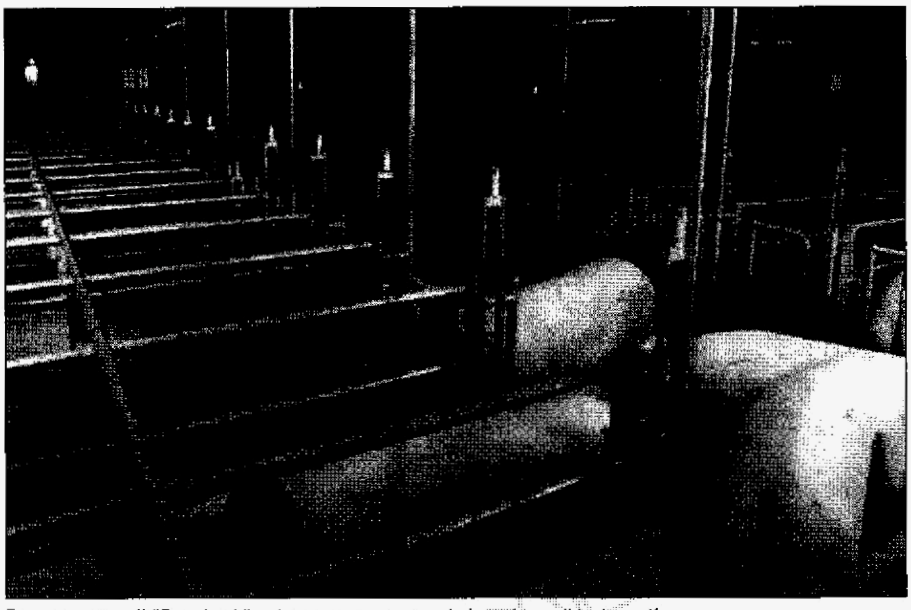
- ✔
- ✔
- ✔
- ✔
- ✔

3. Group housing with free-access stalls "Easy Lock" and "HD"

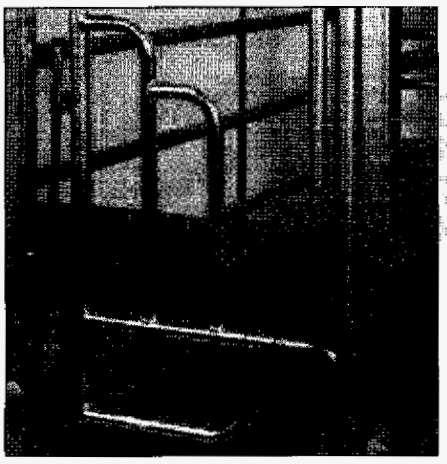
The free-access stalls "Easy Lock" and "HD" close automatically when a sow enters the stall and open when the sow wants to leave the stall. Both stalls allow the sows to move around freely within their group. Feeding, however, takes place only in the stalls. This provides every sow with her own feeding place where she can eat without being disturbed. Feed can be provided either dry or liquid.

Our free-access stalls have the following advantages:

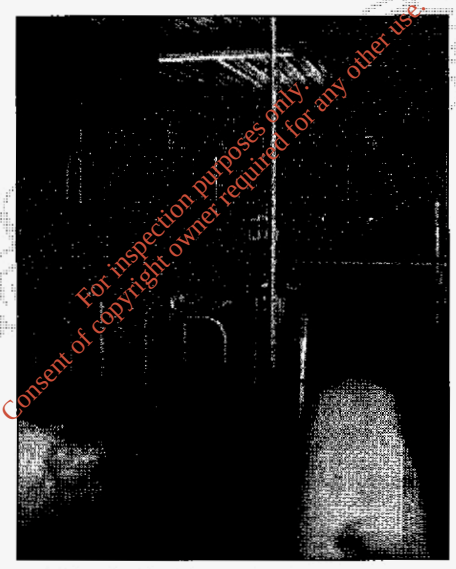
- ✔ the sow can enter or leave the stall at her own will;
- ✔ all sows can eat simultaneously;
- ✔ protection against more aggressive sows;
- ✔ no stress during feeding;
- ✔ good monitoring conditions for every sow since the stalls can be locked individually or altogether;
- ✔ the stall also acts as a safe retreat for individual sows;
- ✔ provides high comfort for both the service personnel and the sow.



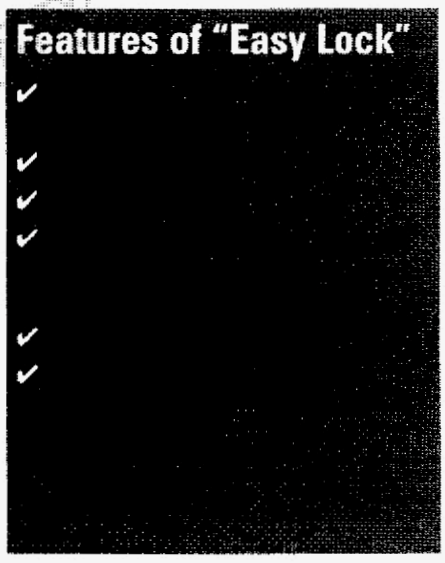
Free-access stall "Easy Lock" – the sow can open and close the stall by herself

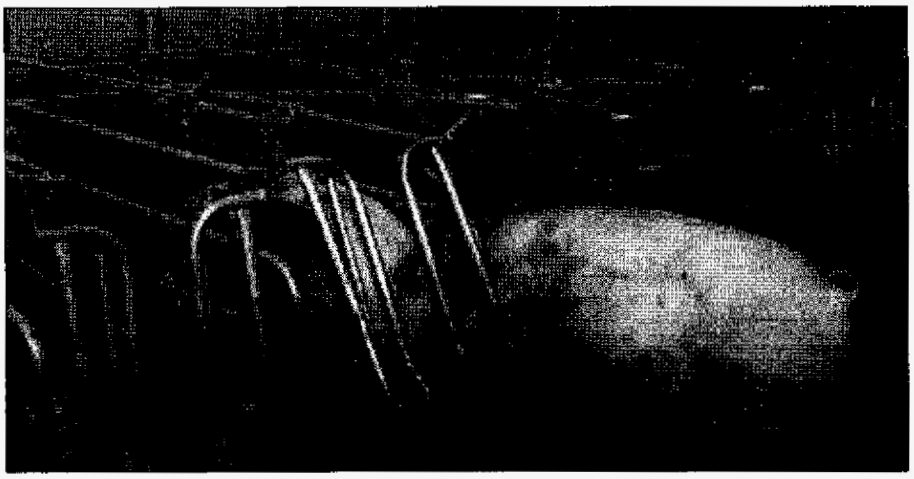


Special insemination door (optional)

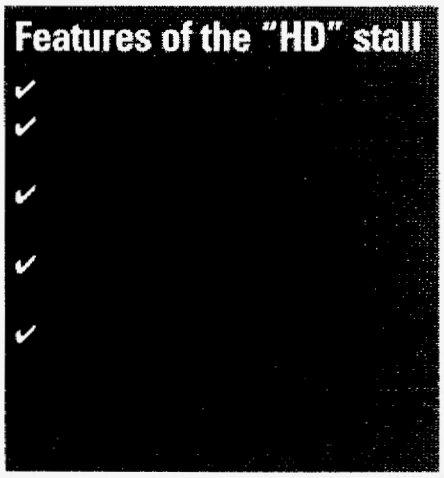


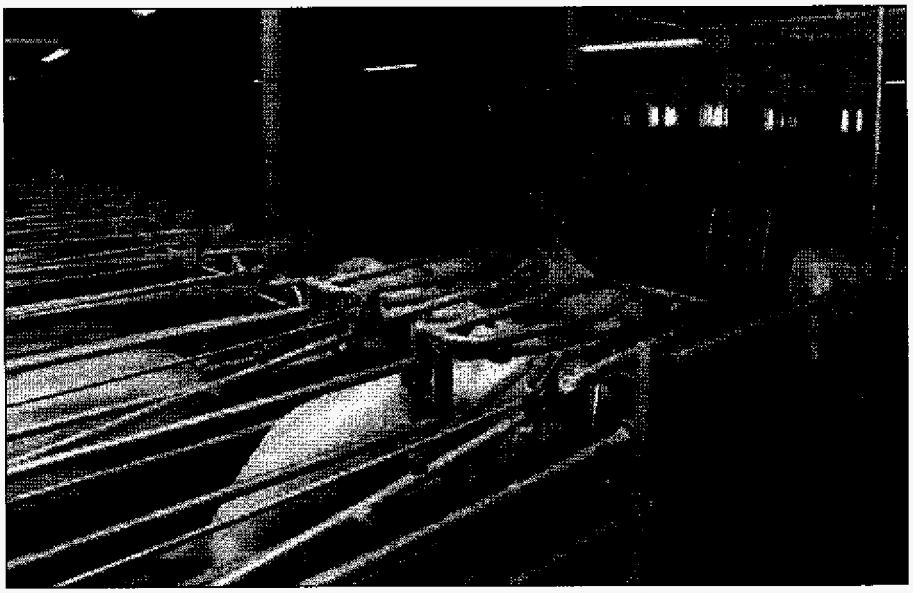
Stall "Easy Lock" with swinging door



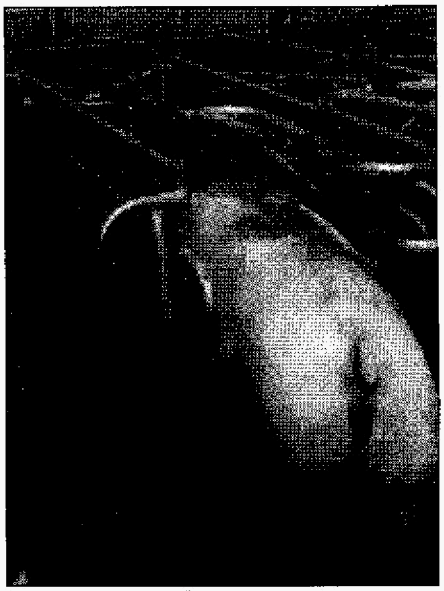


Free-access stall "HD" with up-and-over door





Free-access stall "HD" – the door does not close until the sow has reached the trough

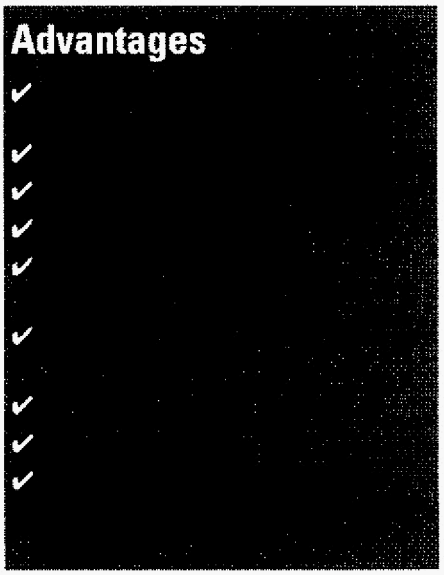


Stall "HD" – very rugged design

4. CallMatic 2 – electronic sow feeding on-demand (ESF)

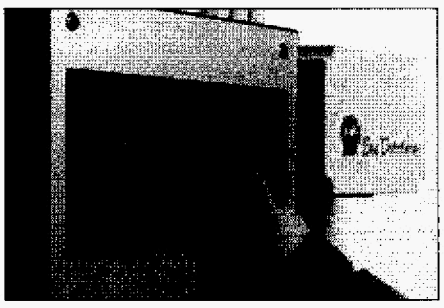
CallMatic 2 is a feeding system for pregnant sows housed in groups. The advantages of animal-friendly husbandry and individual feeding adapted to the needs of the individual sow are combined in an ideal manner.
Individual feeding means that feed is distributed as required by the condition of the individual sow. Feed can be distributed either dry or liquid.
Additional information can be found in a separate brochure.

View into a waiting area with CallMatic 2 ESF stations



The local station computer has a concise display which shows important information such as the number of visits at the station, the consumed feed or the current status of a sow.

Another advantage is that the station computer no longer has to be installed directly at the respective ESF station but can also be installed in the aisle. This makes for better accessibility (animal-free zone) and enables the service personnel to make adjustments without being disturbed.



Station computer in the aisle

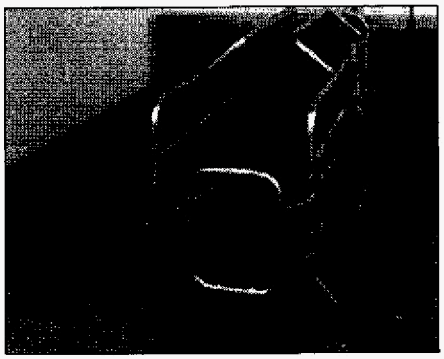
Farrowing area

with farrowing pen, plastic flooring and heated resting area

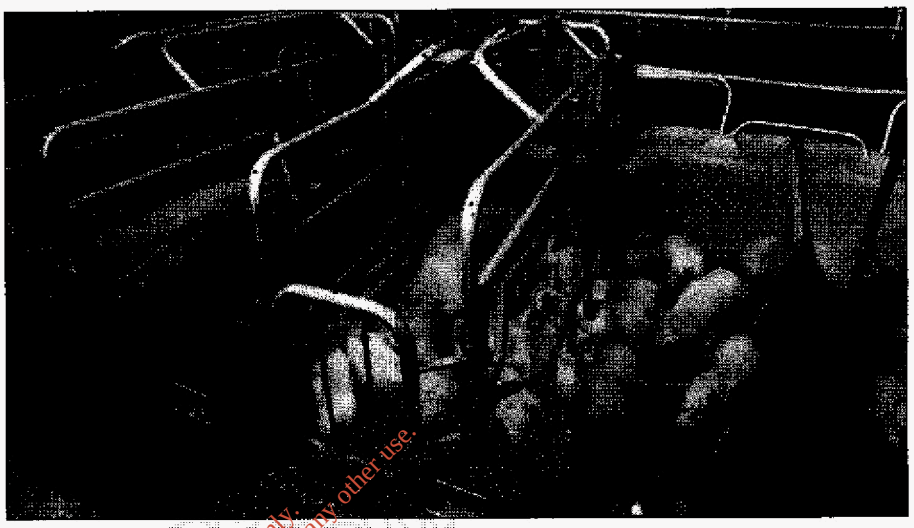
Farrowing pens have to provide ideal conditions both for the sow as well as for the piglets during their first weeks of life. For this purpose, Big Dutchman has different solutions available.

The penning system is very flexible and since it does not depend on length measures, it is possible to create any desired pen shape. The partition of the pen can have a height of 500 or 600 mm.

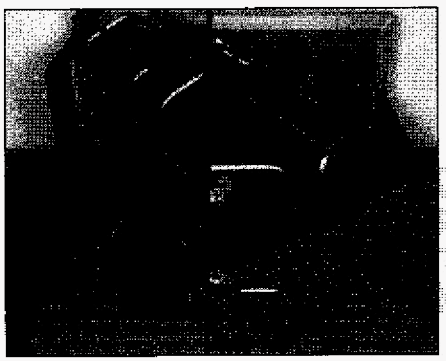
To fulfil special requirements regarding animal-welfare, the farrowing pen is also available as a free-movement pen. There is also a special cover available for the piglets. The front part of the cover can be opened to facilitate monitoring. The rear part has an opening which can be used either for a heat lamp or it can be closed off with a sealing cap.



Pen with 4-foot crate and cast iron slat beneath the sow and integrated plastic heating plate for the piglets



4-foot crate with cast iron slat beneath the sow and heated special cover for the piglets



Diagonal housing

The plastic flooring ensures good manure penetration and does not have any sharp corners or edges. It can be cleaned easily and can be combined with solid plates, cast iron slats and heating plates for piglets. Depending on the housing concept the crates can be arranged straight or diagonal.

Free-movement pen –> more freedom of movement for the sow, diagonal housing

Important features of the farrowing crate

- ✔
- ✔
- ✔
- ✔
- ✔

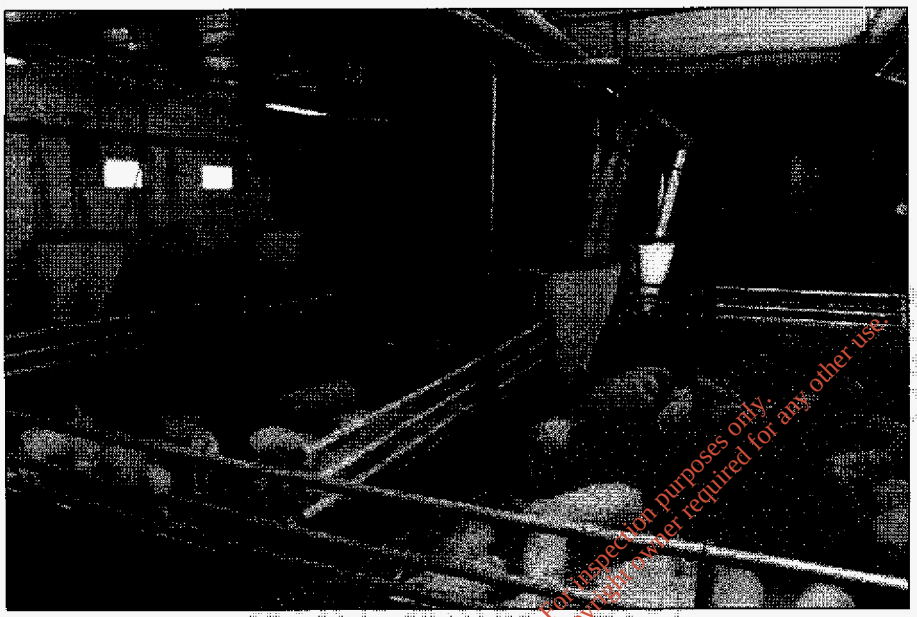
Piglet rearing

Housing and feeding systems

Big Dutchman piglet rearing pens are equipped either completely or partially with our animal-friendly and anti-slip plastic flooring system. Rounded edges protect the piglets against injuries. The optimum solid-to-void ratio ensures good manure penetration thus keeping the floor clean and promoting healthy piglets.

quickly assembled and have a long service life.
If required, heating plates can easily be incorporated. They consist of high-quality polymer concrete, plastic or GRP and are heated either electrically or by means of warm water.
The penning system consists of flexibly-

Feed for piglet rearing can be supplied either dry or liquid. If the DryRapid dry feeding system is used, the Big Dutchman automatic feeders PigNic, SWING or MultiPorc are most appropriate.



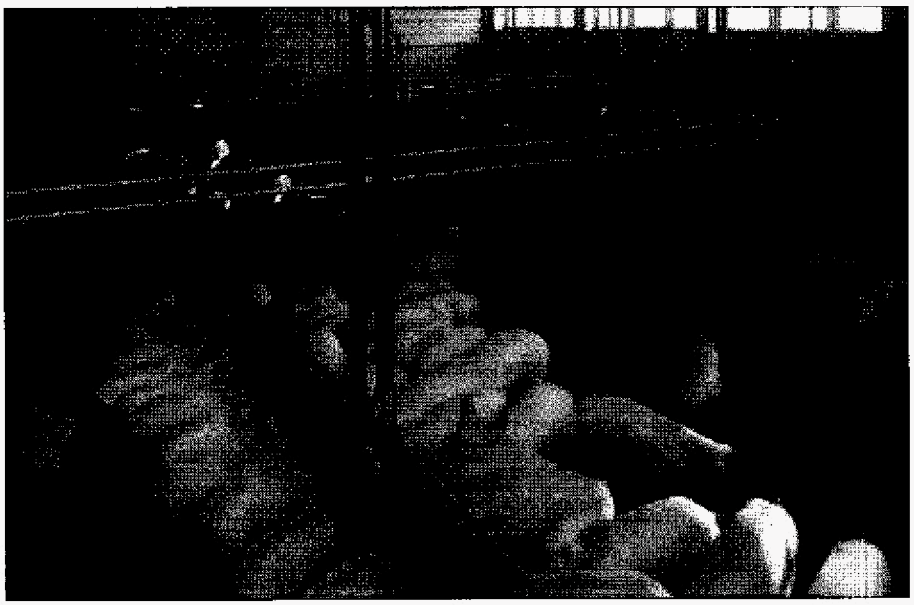
Piglet rearing pen with PigNic-Jumbo

Group pen with MultiPorc

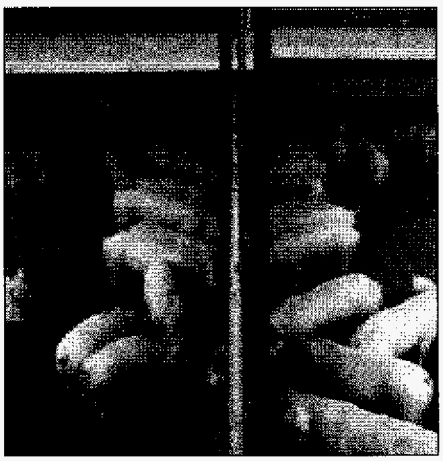
The slats are available in 2 different sizes and can also be delivered with only 10 % slatted area. The slats are easily and

usable, dimension-independent plastic partitions. Door fittings, pen posts and accessories are made of stainless steel.

If the piglets are to be fed with liquid feed, our liquid feeding systems HydroAir or HydroMix-Sensor are the feeding systems of choice.



Piglet rearing pen with liquid feeding system HydroAir



Piglet rearing pen with HydroMix-Sensor