



# USERS MANUAL



# HG FEEDER 600



3. december 2012



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## **2. Guarantee provisions.**

The manufacturer of this machine gives a 12 months guarantee (max. 1000 working hours). The guarantee period starts at the delivery date.

### **The guarantee includes:**

- Components which have to be changed or repaired because of material or fabrication defects.

### **The guarantee does not include wearing and consumer parts such as:**

- Feeding pump, Tyres, Bulbs, Filters, Oil and so on.

### **The manufacturer`s guarantee stops if:**

- The machine is used in a wrong way.
- The machine is used without following the users manual and the precautions.
- The service schedule is exceeded, or non original spare parts are used such as filters.
- The machine is used after a defect is discovered, if this causes a more expensive repair than the original defect.

### **The owners own insurance should cover:**

- Fire, burglary and malicious damage.
- Water and frost damages.
- Corrosion damages caused by battery acid.
- Damages caused by wind and weather.

The manufacturer`s guarantee does not cover these cases.

### **Approval of claim for compensation:**

Provides that the defect part is shown to the manufacturer or a representative of the firm within 2 weeks after the damages is emerged.

The property in the damaged parts is transferred to the supplier of the new parts.

**The guarantee only replaces components not:**

- Freight charges.
- Costs for waiting, working hours for the machine owner and travel costs.
- Operation loss and other following costs.

**Further**

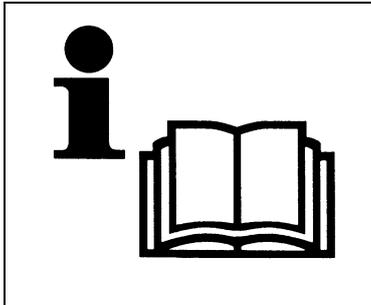
Prior to the guarantee repair the manufacturer has to be contacted in order to agree on the procedure.

These guarantee provisions can only be changed through separate agreement.

### 3. Precautions

Guidance in safe use of the HG Feeder 600:

 **IMPORTANT!**

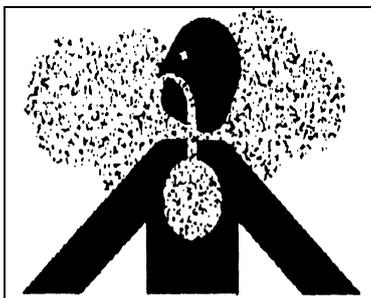


**READ THE USERS MANUAL**

If you are not informed about certain details concerning this machine, there can be some risky situations.

Read the users manual thoroughly before using the machine.

 **WARNING!**

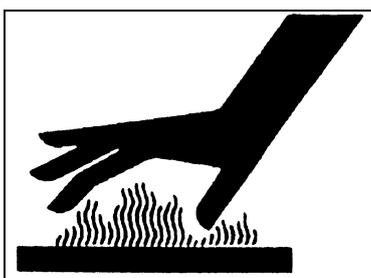


**CARBON MONOXIDE**

Dangerous carbon monoxide from the exhaust of the machine can cause sickness, faint and death.

Do not use the machine in closed and small rooms.

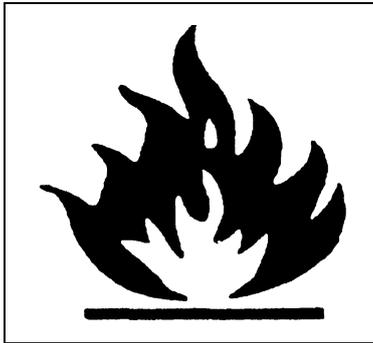
 **WARNING!**



**HOT PARTS**

Hot parts can cause serious burnings. Do not touch the engine or the exhaust during running or when the engine just is switched off.

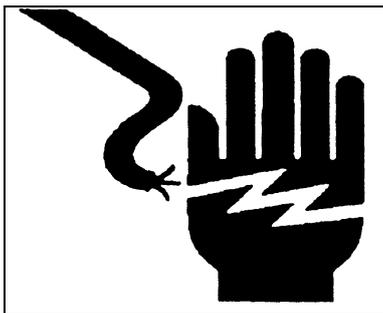
 **WARNING!**



**FIRE HAZARD**

Explosive fuel can cause fire and serious burnings.  
Stop the engine and let it cool off before filling in fuel.  
The engine always has to be switch off during filling.

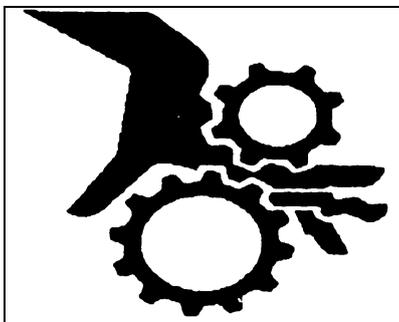
 **WARNING!**



**HIGH VOLTAGE**

The engine generates high voltage which can cause  
bodily damage or death.  
Do not touch the wires while the engine is running.

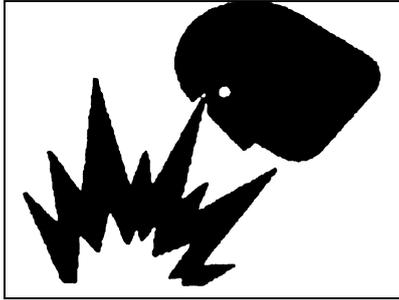
 **WARNING!**



**ROTATING PARTS**

Rotating parts can cause serious damage. Keep  
hands, feet, hair and clothes away from all moveable  
parts. Do not use the machine without the enclosed  
shields and so on.

 **WARNING!**



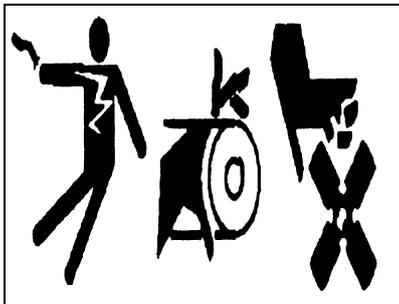
**EXPLOSIVE GAS**

Explosive gas from the battery can cause fire and serious corrosion damages.

Only charge the battery in a well ventilated place.

Keep all flammable sources away.

 **WARNING!**



**DANGER**

Sudden start can cause serious damage and death. At parking and service the engine has to be stopped and the ignition key removed.

 **WARNING!**



**NOISE**

Long stay in noise can damage the hearing. Use of ear defenders is recommended.

### **3.1 Training**

Read the Users Manual thoroughly. You ought to have knowledge to the operating handles/switches and correct use of the equipment.

Do not let children or persons, who have no knowledge to the instructions, use the machine. The law may have stated an age limit for persons who may use the feeding machine.

Remember the driver is responsible for accidents or dangerous situations that could cause damages towards other human beings or their property.

The driver should be carefully instructed in using the machine. The instructions should especially pay attention to the following:

The need of being carefully and concentrated when you work with automotive machines.

Form a general view of what happens in front/behind the machine especially during feeding, where other people are present.

**The most important causes for accidents:**

**Driving too fast, especially with a filled up container.**

**Turning with high speed, especially with feed in the container.**

**Lack of a general view.**

**The driver`s knowledge to the machine is insufficient.**

**The terrain conditions are too steep.**

### **3.2 Preparations**

When you drive do not wear loose clothes, which can grasp nesting boxes, doorways and so on. Always wear nonslip shoes in order to operate the pedals in a safe way.

-Keep the fuel in cans that are approved to the purpose, and out of reach for children and unauthorized persons.

-Only fill in fuel outdoors. Smoking is forbidden at filling up.

-Fill in fuel before starting the engine. Never remove the cover on the fuel tank or fill in fuel, while the engine is running or hot.

-If you spill fuel do not try to start the engine, but remove the machine from the spot, where the fuel was spilled, in order to avoid setting fire to the fuel. If you spill fuel on the exhaust or out on the engine, then wait until the fuel is evaporated, or else a fire could arise.

-If you get diesel or engine oil on your skin, wash your skin carefully with soap.

-Inhalation of fuel mists or oil mists are insanitary.

-Consuming fuel or oil is dangerous.

### **3.3 Daily control**

At visual control the following has to be checked after every filling up fuel:

- That there is no leak in the hydraulic system at tubes, tank and so on.
- That there is no leak in the fuel system at tubes, filters, tank .
- That all bolts, nuts and so on are securely tightened.
- That the silencer is tight.
- That the admission of air behind the seat and the rotating blower are free of wool.
- That there is no spilt engine oil around the oil filler neck.
- That the air pressure in the tires is checked once a week.
- That the running pedal easily goes to the middle position in idling. (That the machine stands still, when you let go of the running pedal).

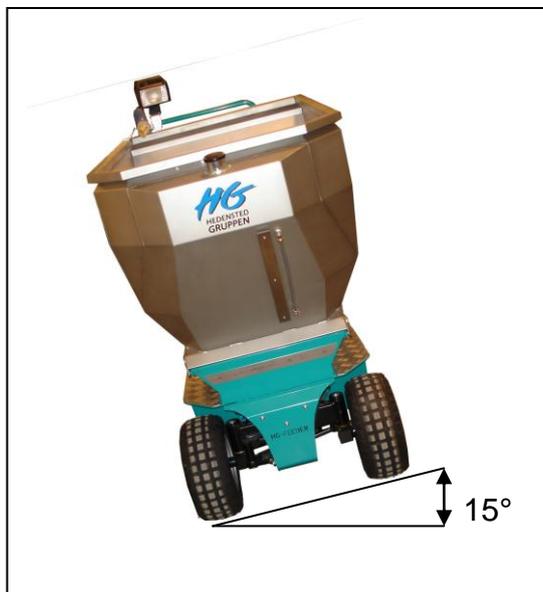
## 4. Operation

Do not let the engine run in small closed rooms, where a dangerous carbon monoxide can be accumulated.

**Warning:** Inhalation of carbon monoxide can cause poisoning and possible death.

Do not use the machine in places with flammable dust or explosive gases or where the exhaust gets in contact with ignitable material.

Use as far as possible only the machine in daylight or in good artificial lighting.



When you start the engine, you must not rest the feet on the pedals, they have to be placed on the running board.

Notice that the driving ability of the machine is changed a lot from an empty to a filled feeding container, because the centre of gravity is moved highly up at a filled container.

When you drive with a filled

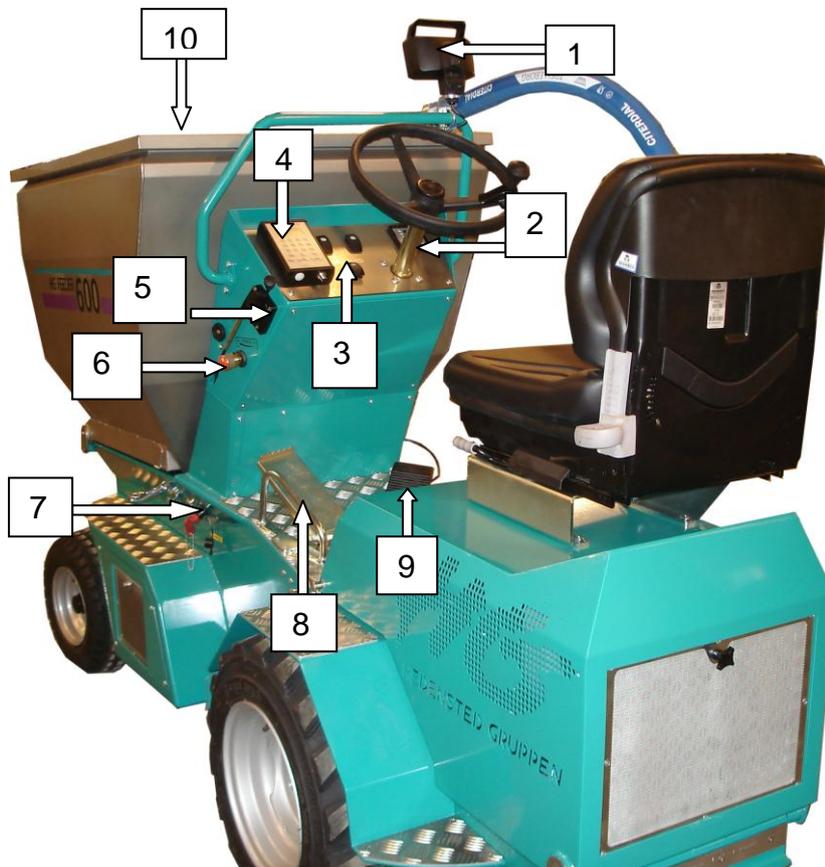
container pay attention to the fact that the machine **can overturn**, if you drive with high speed in a curve or on slopes with more than 15 degrees tilt

You obtain pleasant driving if you operate the running pedal with smooth movement of the foot. Remember that the operating speed increases proportional to the press on the running pedal. It goes both forward and backward.

When you leave the machine you have to remove the ignition key from the dash board.

## 4.1 Operating instruments

The below shows the position of the different operating instruments on the HG Feeder 600. See the following pages for a deepening description.



- 1 Working lamp
2. Engine operation.
3. Tumbler switches for feeding method, reverse pump and water.
4. Feeding computer (extra equipment).
5. Throttle hand lever.
6. Regulation of amount of feed and water supply.
7. Main switch.
8. Running pedal.
9. Feeding pedal.
10. Water refill and water gauge.

## 4.2 Engine operation

The engine operation and the ignition key are mounted on the dash board in the right side. The operation contains light indicator, preheater and hour meter. When the engine runs the operation supervises the condition of the engine. If the engine is overheated or there is a lack of oil pressure the engine stops automatically.

Afterwards it informs you about the fault through the light indicators.



### Start of the engine (Preheater):

If you start a cold diesel engine it has to be preheated. Turn the key against right to position 1. The lamp "preheater" lights 15 seconds, at the same time the engine is preheated. When the lamp switches off you turn the key to position 2 and the engine starts. When the engine runs you let go of the key.

If you start a warm engine the lamp "preheater" does not light, and the engine can start at once.

### Hour meter:

The hour meter tells you how many hours the machine has operated. The hour meter is activated when you start the engine.

**Status:**

The status lamp shows the condition of the engine. If it lights green the oil pressure, the temperature and the generator are ok. No light indicates that the engine properly has been stopped by the control unit in order to protect the engine. So the missing green light means error, and one of the other lamps will light red in order to indicate the cause.

**Charging lamp:**

The charging lamp indicates the function of the generator. The lamp lights red, if the generator does not load correctly on the battery. In this case check the generator of the machine.

**Oil lamp:**

The lamp indicates the lubricating oil pressure of the engine. If the lamp lights red the oil pressure is not high enough, this can damage the engine. In this case the control unit will stop the engine in order to protect it. The status lamp switches off and the oil lamp lights in order to indicate the cause.

**Temperature:**

The lamp indicates the temperature of the engine. If the lamp lights red the cooling water temperature is too high, this can damage the engine. In this case the control unit will stop the engine in order to protect it. The status lamp switches off and the temperature lamp lights in order to indicate the cause.

**Zero position of protection stop:**

If the engine has been stopped by the control unit, the cause is shown via the control lamps. When the cause of the error is traced and repaired, you turn the key left to position 0. Wait 10 seconds and turn the key to position 1. The control unit tests the system and lights shortly with all the lamps. The engine is ready for a start.

### 4.3 Tumbler switches.

On the tumbler switches placed on the dash board you can change between the different functions of the feeding pump.



#### **Reverse:**

On the reverse button there is a possibility of running backwards with the feeding pump. Activate the reverse function by pressing the **white spot**, and then press the feeding pedal in order to make the pump running.

#### **Water:**

Activation of the water pump. When you press the **white spot** of the tumbler switch you turn on the water dosing, so that the feed is supplied with an adjustable amount of water.

#### **MAN/AUTO.**

On the button you can change between manual and automatic feeding. At automatic operation you activate the feeding pump when you press the feeding pedal, and the feeding pump steers the amount of feed and the interval between the lumps.

(Feeding computer is extra equipment).

At manual running the operator steers the feeding amount manual by activating the feeding pedal.

#### 4.4 Feeding computer (extra equipment)



The feeding computer secures a homogeneous draining of feed. The computer steers the lump amount and the interval they have to come in. The operator can adjust the interval time so that it fits exactly to the operator`s working speed. For further information see the Users manual for Twinca Easy.

#### 4.5 Throttle hand lever.



The throttle hand lever is mounted on the left side on the dash board. The turns on the diesel engine increases when you pull the throttle hand lever against yourself. If the hand lever cannot stay in the chosen position, you tighten the center nut a little, so that the friction in the turning function is increased.

#### 4.6 Regulation of feed amount and water.

With the water regulation you can decide the amount of water that is mixed into the feed, when the feeding pump is activated.



The feeding pump regulator adjusts the orbital velocity for the feeding pump, so that there can come more or less feed in a certain period. Indication for adjustment you find over the regulators.

#### 4.7 Main switch.



The main switch is placed on the left side of the feeding machine. It switches off all power from the battery and the rest of the electric supply mains.

#### 4.8 Driving pedal.



The driving pedal is placed to the left on the machine. Notice that the pedal has to be activated softly, because the speed of the machine is proportional to the deflection on the pedal. And the driving will be more pleasant, when you operate the pedal with smooth movements. For adjustment of the pedal see the section “adjustment of driving comfort”.

**Important: At very low temperatures the braking distance can be longer until the oil is getting warm.**

## 4.9 Feeding pedal.

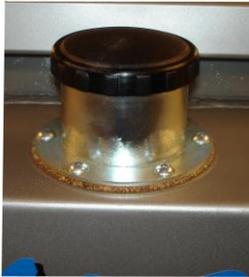


The feeding pedal is placed to the right on the machine.

The pedal has to be activated with the foot every time, there has to be pumped out feed.

## 5. Water tank and water filling up

In front of the machine you find the water tank. The tank makes it possible to bring along water, and mix it currently in the feed, so that the correct consistence is obtained.



The filler neck to the water tank is placed on the top edge of the water tank in front of the feed tank. Dismount the tank cap by turning anticlockwise.

At the front of the feed tank you find the water gauge for the water tank. The indicator is made so that it is easy to change if there is dirt inside. You read the water level of the tank in liters at the belonging scale.



### 5.1 Water emptying, cleaning – dosing pump



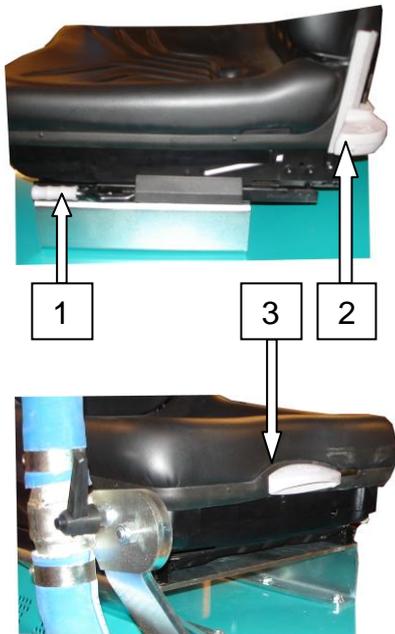
In order to lighten the cleaning and emptying of the tank you can tip the feed tank, so that the water runs out of the filler neck. Is the tank tipped you can dismount the cover in the bottom of the tank, it makes cleaning easier.



The dosing pump, which presses the water out into the feeding pump, is placed under the dash board in the left side of the machine. The pump only runs when you activate the water on the tumbler switch and the feeding pedal.

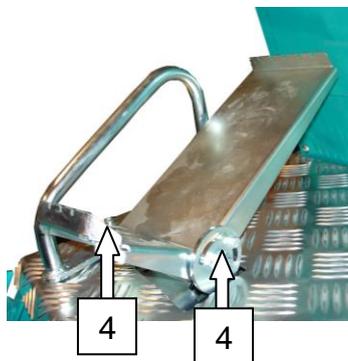
## 6. Adjustment of driving comfort

In order to obtain a pleasant driving it is important to adjust the seat, pedals and feed hose, so that they fit the driver`s height and weight.

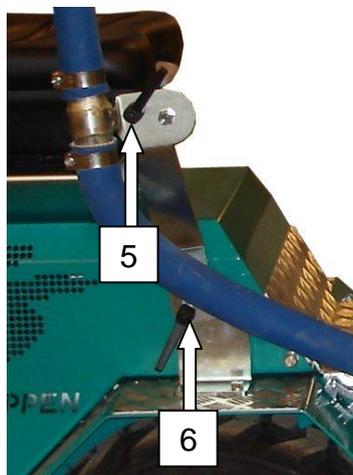


Adjustment handle for seat:

1. Longitudinal adjustment
2. Weight/hardness adjustment
3. Back adjustment



In order to adjust angles on the driving pedal you loosen the nuts in each side, marked 4. Now you can adjust the angle of the heel and toe plate. At the same time you can adjust the complete angle of the pedal in proportion to the bearing plate. Notice if the pedal still has full reflection forward and reverse after adjustment.



On handle 5 you can adjust the height of the feed hose.

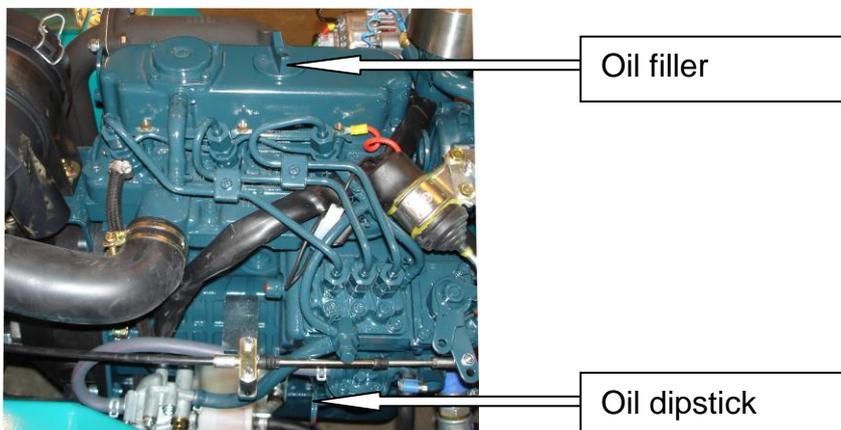
On handle 6 you can adjust the position of the feed hose in proportion to the seat.

## 7. Check before start.

Before starting the machine and the feeding, carry out the daily check in order to secure the operation of the machine.

### 7.1 Oil level engine

The oil level in the engine must be checked before start every time you use the machine. The machine has to stand horizontal when you check the oil. Pull out the oil dipstick, dry the stick with a cloth, put it back, pull out the stick again and read the oil level. If the oil level is under minimum or just above minimum, replenish to maximum.



### 7.2 Oil level hydraulic.

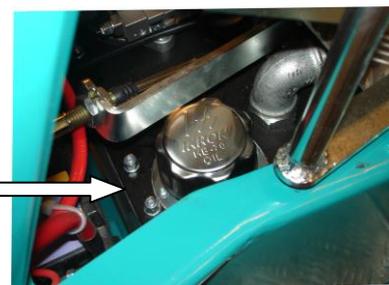
You can read the level of the hydraulic oil on the level indicator positioned under the driving pedal at the left side.

If the oil level is at the minimum mark you have to replenish.



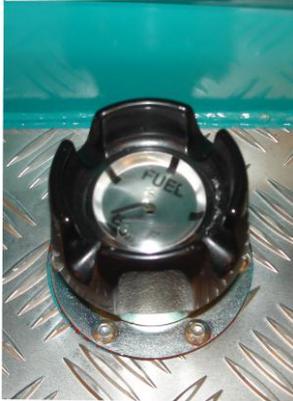
Indicator

In order to reach the filler neck you dismount the stud to the foot pedal in the right side, then you can pull out the plate.



Filling in hydraulic oil

### 7.3 Fuel, refueling



HG Feeder 600 runs on ordinary diesel oil for internal combustion engines. Only use oil that is free of water and impurities.

Unscrew the cover on the right side of the machine and fill in diesel oil.

The amount of fuel you can read on the scale in the cover.

Normally the diesel oil is frost-proofed to about  $-21^{\circ}\text{C}$ , but during a strong frosty weather, paraffin is made in the diesel oil. In order to prevent this you can add petroleum:

<p><b>At temperatures under <math>-10^{\circ}\text{C}</math> add 10% petroleum</b></p> <p><b>At temperatures under <math>-20^{\circ}\text{C}</math> add 25% petroleum</b></p> <p><b>At temperatures under <math>-30^{\circ}\text{C}</math> add 40% petroleum</b></p> <p><b>At temperatures under <math>-40^{\circ}\text{C}</math> add 55% petroleum</b></p>
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In order to be sure of the frost-proof grade of your diesel oil, ask your diesel supplier about specifications of your diesel oil.



#### **WARNING**

**Fuel is flammable. Be very carefully and always refuel out in the open.**

**Do not smoke while refueling.**

**Never refuel with a hot engine! Wait minimum 10 minutes.**

**Never fill to overflowing, fuel can expand and run over**  
**Make sure that the tank cover is screwed firmly on after refueling.**

**Keep the fuel in a cool spot in a container that is made for the purpose.**

**Check the fuel tank and the hoses often for leaks.**

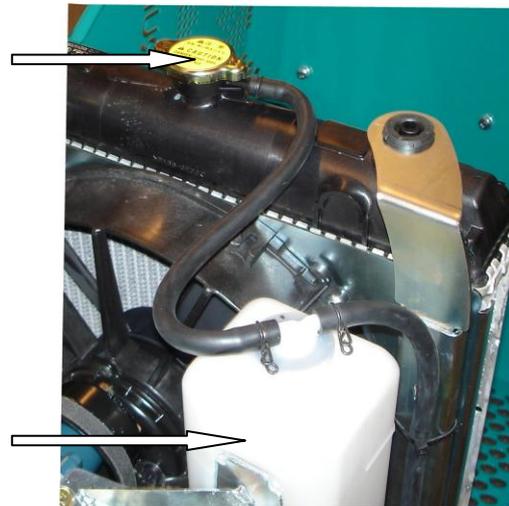
## 7.4 Cooling water.

The cooling system to the diesel engine is equipped with an expansion tank in order to absorb the expansion of the water during temperature changes.

**Important: Covers in connection with the cooling system must not be opened before the engine is cold. There is a risk of being scalded by warm steam.**

Check frequently that the cooler is filled up.

Check the level of the cooling water daily at the side of the expansion tank, where you find the marks Full and Low. The liquid level must be between these marks.



At replenishment only use clean water mixed with coolant of the type Ethylenglykol. The mixture ratio of the coolant depends of the climate/country the system has to be frost-proofed to.

## 7.5 Air intake to water cooler.

The cooling water system on the machine is provided with an electric blower in order to remove the heath. The blower is controlled so that it after a few minutes operation turns the rotation and blows the particle filter free of dirt in order to secure the airflow through the cooler.



**Important: Keep the filter clean.**

Check it anyway that the particle filter on the back of the machine is free of dirt, so that the machine gets cooling air. Lift up the filter and tilt it out below.

## 7.6 Air intake to oil cooler.

The hydraulic system on the machine is provided with an electric blower in order to remove the heat. The blower is controlled so that it after a few minutes operation turn the rotation and blows the particle filter free of dirt in order to secure the airflow through the cooler.



### **Important: Keep the filter clean.**

Check it anyway that the particle filter on the left side of the machine is free of dirt, so that the machine gets cooling air. Lift up the filter and tilt it out below.

## 8. Driving and feeding

The following section describes the method and the precautions in connection with driving and feeding.

### Start of engine



At start of the machine turn the key to position 1. Here the controller activates the preheater, if it is necessary.

Wait until the lamp for the preheater turns off, and turn the key to position 2.

When the engine runs, release the key again, and it returns to position 1.

### Driving

Speed up to the wanted number of rotational speed found, put both your hands on the steering wheel, put the feet in a position as wide as possible, press the driving pedal gently (placed at the extreme left). The gentler you treat the pedal, the more pleasant gets the driving. If you push the pedal hardly down the machine speeds quickly up, and if you suddenly let go of the pedal, the machine slows hardly down.



#### **WARNING**

**Beware that feet and legs do not overhang the machine so that they can hit something or get squeezed between cages, doors and so on.**

**Never press the pedals standing or with your hands. Only when you are seated in the seat.**

We advise you not to drive too fast in a turn, especially with a filled feed container. The machine can easily tilt because the centre of gravity is pretty high with a filled container.

We also advise you not to drive in terrain with a slope on more than 15°, the machine can easily tilt.



### **IMPORTANT!**

If the machine should tilt driving in a bad terrain or quick turns with filled container, then jump of the machine to the opposite side of where it tilts to. It minimizes the risk of getting squeezed under the machine.

### **Feeding**

Before feeding you have to adjust the speed of the feed pump and the amount of water. You normally only do this one time or when the watery or the consistence of the feed can vary.

When you feed be concentrated and keep a good general view, beware not getting too close to the nesting boxes when you drive through the shed. If you loose concentration you can easily get out of course during feeding and damage cages and boxes.

### **Stop of engine and parking.**

Speed down to idling and let the machine run in a couple of minutes, so that the strained engine can reach normal operation temperature before you switch of, it will prolong the life of the engine.

At parking notice that even a easy sloping layer can make the machine running, at the risk of the machine itself runs out on a road or cause other damages.

Park on horizontal layer and remove the key.

## 9. Maintenance

Maintenance schedule: HG Feeder 600

OPERATION ↓	OPERATION HOURS →	5	25	100	200	500	2500	5000
Check	Hydraulic oil level and leaks	■						
	Fuel tank, hoses and leaks							
	Engine oil level	■						
	Water pump		■					
	Belt tightening							
	Engine support							
	Exhaust	■						
	Cooling water							
	Air intake and cooling grille							
Adjustment	Driving cable			■				
	Gas cable			■				
Oil	Cables			■				
	Steering gear			■				
	Feed pump		■					
Tightening	Various nuts			■				
	Naves			■				
	Engine fittings			■				
Cleaning	Air filter			■				
	Air intake and cooling grille			■				
	Fuel tank				■			
Changing	Engine oil(*)			■	■			
	Hydraulic oil(*)			■		■		
	Air filter				■			
	Hydraulic filter			■		■		
	Fuel filter				■			
	Engine oil filter			■	■			
	Cooling water						■	
	Belt					■		
Renovation of engine	Partly						■	
	Totally							■

■ = First change of oil

(\*) Hydraulic- and engine oil has to be changed as described in the schedule, at least once a year.

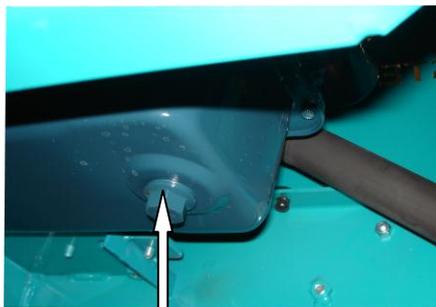
## 9.1 Engine oil and oil filter change

It is recommended that Hedensted Gruppen carries out this service.



Put a suitable container under the engine and remove the drain plug.

Notice that there is approx. 6-7 liters of oil.

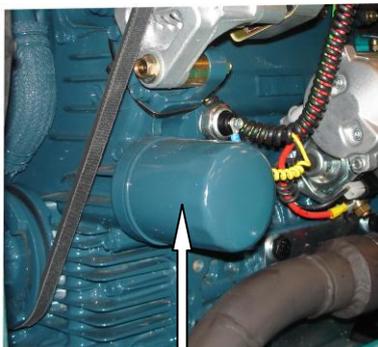


Drain plug

### **Warning!**

**The oil can be very hot.**

Mount the drain plug again, when there is no more oil.



Oil filter

The oil filter is placed on the right side of the engine. Dismount the old filter by turning anticlockwise. Grease the packing on the new filter with a little oil and mount the new filter. Tighten the filter as good as you can with your fingers.

Filler cap



When the drain plug is mounted refill with new oil.

Amount see section 15 specifications. Before refilling clean the area around the cap.

## 9.2 Changing diesel filters and bleeding

It is recommended that Hedensted Gruppen carries out this service.



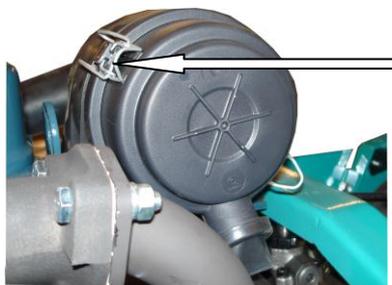
Changing the glass filter. Turn off the oil cock. Dismount the glass by turning the swivel anticlockwise. Pull the filter down and remove the old filter. Mount the new filter in the opposite order.

Open the oil cock again.

Change the flow filter by loosening the clamping fixtures and pull the tubes off.

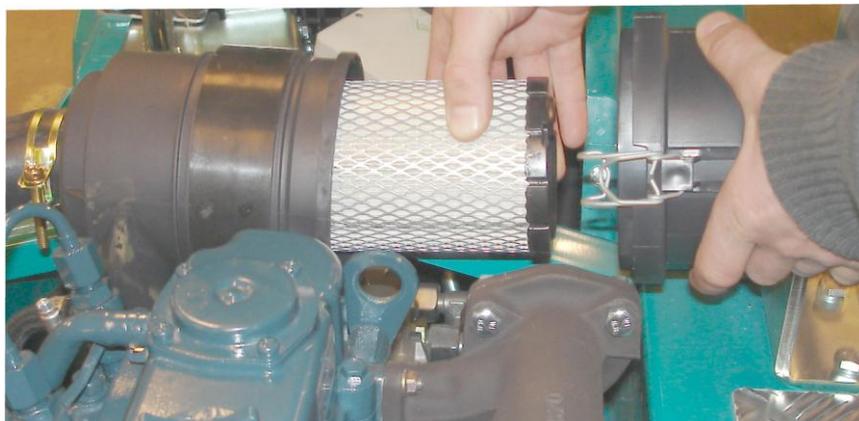
Scavenge the diesel system before starting the machine again.

### air filter



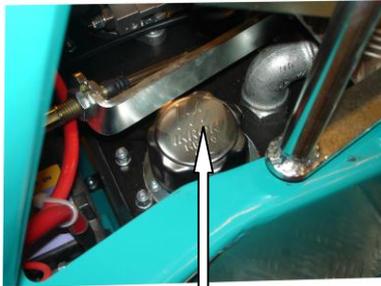
Cleaning – open the fittings and pull off the cover, then you pull out the filter and bump it gently into the floor, so that loose dirt falls off.

Change – open the fittings and pull off the cover, then remove the old filter and mount a new one.



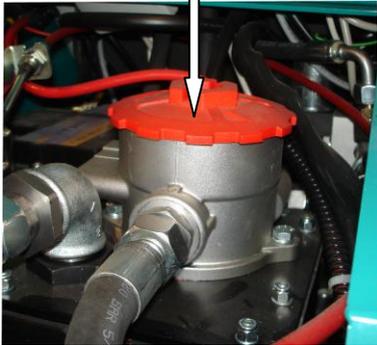
## 9.4 Change of hydraulic oil and hydraulic filter

It is recommended that Hedensted Gruppen carries out this service.



Filling in hydraulic oil

Hydraulic oil



Put a suitable container under the hydraulic tank, and remove the drain plug placed under the machine. Notice that a great amount of oil will flow.

**Warning! The hydraulic oil can be very hot.** When the tank is emptied mount the drain plug again.

Refill new oil – amount see section 15 specifications.

Change of hydraulic filter.

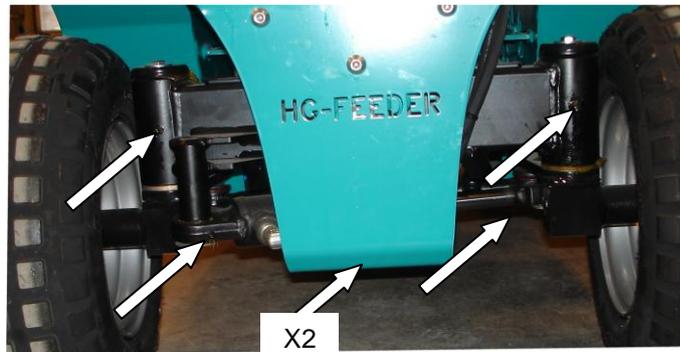
Unscrew the filter cap by turning anticlockwise and remove the cap. Lift up the old filter and put the new one into the cartridge.

If the cap is dirty clean it before you screw it on again.

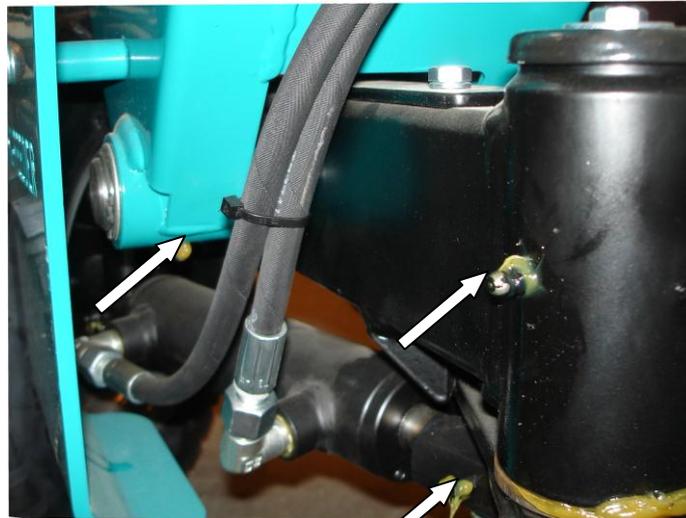
## 9.5 Lubrication

Every 100 hours the marked points on the steering gear have to be lubricated.

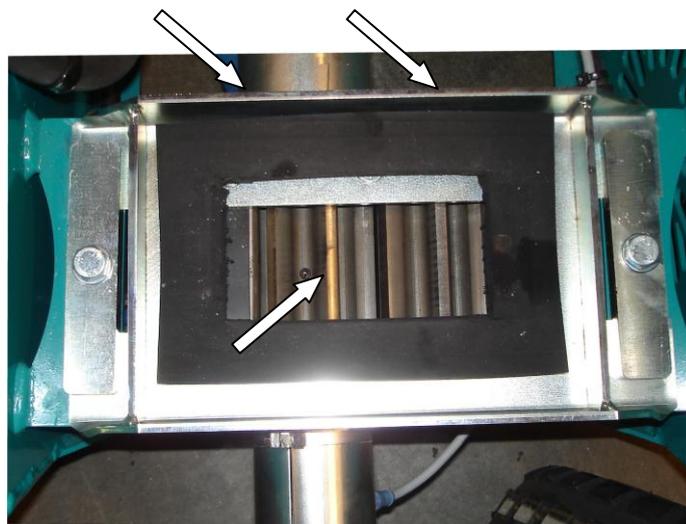
In front



At the side



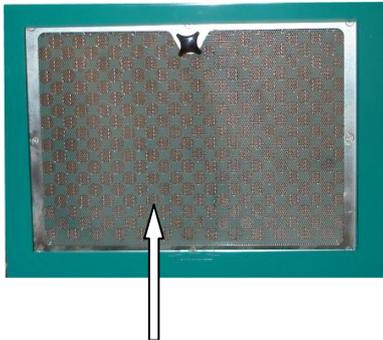
The bearings of the feeding pump have to be lubricated every 25 hours



## 9.6 Maintenance cleaning



Air intake oil cooler – on the left side of the machine



Air intake water cooler – at the back of the machine

Check that the air intake behind and on the side is free of wool, dirt and so on.

Lift off both filters and clean them also inside, remove dirt inside on the water and oil cooler.

### Important!

**Do not use water or compressed air to clean this, the engine can be damaged by the water, and the compressed air will blow the dirt further into the engine.**

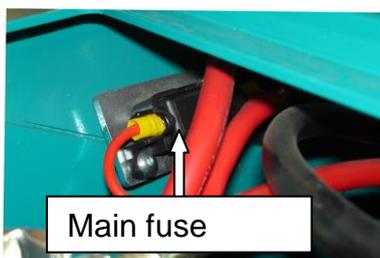
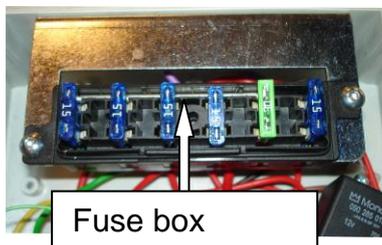
### Important!

**Never sluice with water directly against the engine.**

### Warning!

**The engine has to be switched off and the key removed, before you start cleaning.**

## 9.7 Fuse box



The fuse box is placed in the plastic box behind the plate under the steering wheel.

The main fuse of the electric supply mains is placed under the foot pedal in the left side.

**Important: When you change a fuse, never put a bigger fuse in that the one placed in the box.**

## 9.8 Tyre pressure

Check that the tyre pressure is correct, a wrong tyre pressure can make the machine unstable and the driving quality will be unpredictable.

There can be different tyres on the machine, check the list below, and the tyre pressure is specified beside the picture.

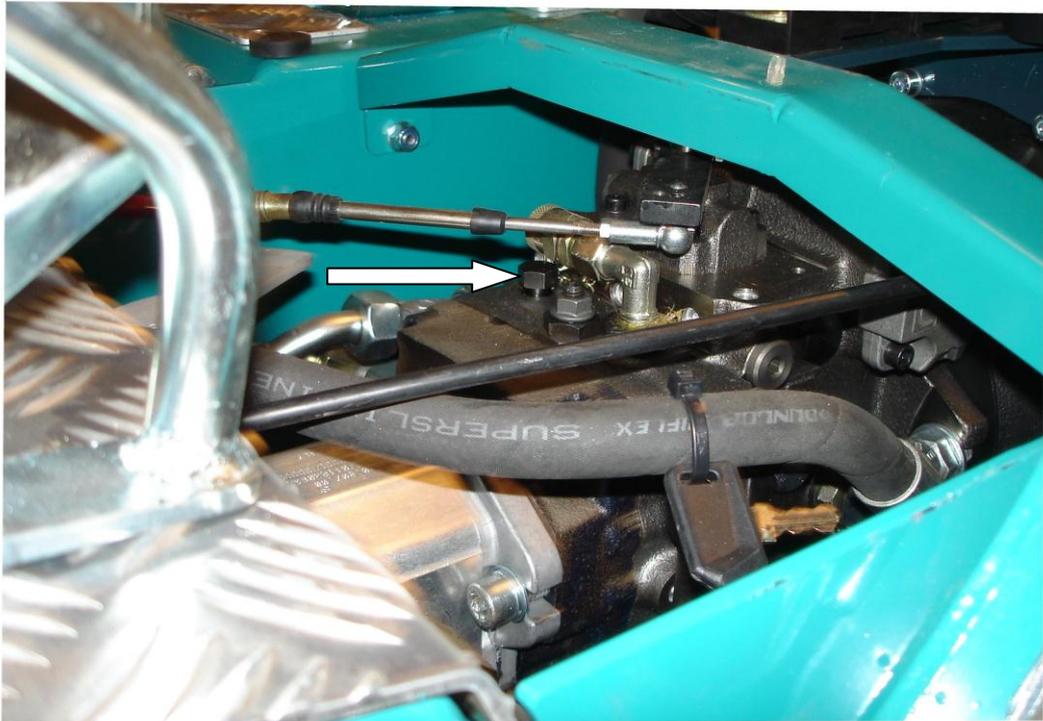
 <p><i>Truck tyre no.: 474760</i></p>	<p>max. 340 kPa (max. 3,467 kp/cm<sup>2</sup>) max. 3,4 bar</p>
--	---

 <p><i>Trelleborg lawn tyre (std.) no.:474756</i></p>	<p>max. 460 kPa (max. 4,690 kp/cm<sup>2</sup>) max. 4,6 bar</p>
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 <p><i>Front tyre no.: 474738</i></p>	<p>325 kPa (max. 3,314 kp/cm<sup>2</sup>) max. 3,25 bar</p>
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## 10. Towing the machine.

You can push the machine when the engine is switched off, but it is very difficult, because you have to push the hydraulic too. Therefore a neutral position valve is mounted on the running pump, which disconnects the hydraulic.



If you tilt the engine box you can see the screw to the neutral position valve at the top of the hydrostatic valve right under the propulsion cable.

Clockwise = Freewheeling

Anti Clockwise (bottom) = Running

It is important that the neutral position valve is completely closed after use, or else the inexpedient leak in the hydraulic circulation will reduce the turnout of the machine.

## 11. FAQ.

Fault	Possible reason
Engine cannot start	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Air in the fuel pump.</li> <li>• Empty fuel tank.</li> <li>• Too big piston clearance.</li> </ul>
The engine starts, but stops again.	<ul style="list-style-type: none"> <li>• Clogged air filter.</li> <li>• Air in the fuel pump.</li> <li>• Clogged fuel filter.</li> <li>• Error or clogging in the fuel delivery.</li> <li>• Blocked valve in the fuel tank.</li> <li>• Burnt out exhaust valve.</li> </ul>
The engine has no tractive effort	<ul style="list-style-type: none"> <li>• Glogged air filter.</li> <li>• Clogged fuel filter.</li> <li>• Worn cylinder.</li> <li>• Worn piston rings.</li> <li>• Error or clogging in the fuel delivery.</li> <li>• Burnt out exhaust valve.</li> </ul>
The engine has a low oil pressure	<ul style="list-style-type: none"> <li>• Clogged lubrication circulation.</li> <li>• Worn oil pump.</li> <li>• Error on the oil pressure valve.</li> </ul>
The engine is blocked	<ul style="list-style-type: none"> <li>• Main bearings are burnt or defect.</li> <li>• Pistons are burnt.</li> <li>• Hydraulic pump blocked.</li> </ul>
The engine smokes blue (diesel)	<ul style="list-style-type: none"> <li>• Worn valve guide.</li> <li>• Worn cylinder.</li> <li>• Too much oil in the crankcase.</li> <li>• Worn piston rings.</li> </ul>
The engine smokes white (diesel)	<ul style="list-style-type: none"> <li>• Too big piston clearance.</li> <li>• Wrong injection timing.</li> </ul>
The engine smokes black (diesel)	<ul style="list-style-type: none"> <li>• Overloading.</li> <li>• Fault at the injection.</li> </ul>
Engine pounds in the crankcase	<ul style="list-style-type: none"> <li>• Small or big end bearings is burnt or defect.</li> </ul>
Engine pounds in the tilting device	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Too little piston clearance.</li> <li>• Wrong injection timing (diesel).</li> <li>• Worn piston rings.</li> </ul>
The engine uses oil	<ul style="list-style-type: none"> <li>• Worn valve guide.</li> <li>• Worn cylinder.</li> <li>• Oil seals are untight.</li> <li>• Too much oil in the crankcase.</li> <li>• Worn piston rings.</li> </ul>
The engine oil level increases	<ul style="list-style-type: none"> <li>• Too big piston clearance.</li> <li>• Defect injection system.</li> </ul>
The engine loses oil	<ul style="list-style-type: none"> <li>• Blocked breather tube.</li> <li>• Defect injection system.</li> </ul>
The engine is super heated	<ul style="list-style-type: none"> <li>• Too little piston clearance.</li> <li>• Cooling ribs are glogged</li> <li>• Injection timing is wrong.</li> <li>• Injector is defect.</li> <li>• The engine is super heated.</li> </ul>
The engine misfires	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Cold engine.</li> <li>• Air intake is glogged.</li> <li>• Gets false air via the injection pump.</li> <li>• Defect injection system.</li> </ul>
Bad acceleration	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Gets false air via the injection pump.</li> </ul>

## **12. Hydraulic diagram.**

## **13. Electric diagram.**





## **14. Spare parts.**













## 15. Technical data.

### Dimensions and weight:

Width:	90cm
Length:	265cm
Height:	173 cm
Dead load:	750kg
Turning diameter (external dia.)	290cm

### Engine:

Type:	Kubota D902 E3B
Effect kW / HK:	18,5 / 24,8
Rotations :	3600 o/min
Volume:	898 ccm
Bore x stroke:	72 x 73,6mm
Oil amount :	3,7 ltr.
Cooling water amount:	4 ltr.
Hydraulic oil amount:	28 ltr.

### Liquid types:

Engine oil:	Q8 T520 SAE 15W-40
Hydraulic oil:	Q8 ISO VG68
Coolant:	Ethylenglycol
Fuel:	Diesel

### Containers and tanks:

Feed container:	585 ltr.
Water tank:	55 ltr.
Fuel tank :	22,5 ltr.

### Wheel dimensions:

Front wheels:	LP-190-8
Rear wheels:	23x8,50-12

## 16. EC Declaration of Conformity.

Hedensted Gruppen A/S  
Vejlevej 15,  
8722 Hedensted  
Tlf. (+45) 75 89 12 44  
Fax (+45) 75 89 11 80  
[www.hedensted-gruppen.dk](http://www.hedensted-gruppen.dk)

- herewith declares that:

HG Feeder 600  
Type number 250039

- is in conformity with the provision of:

The Machinery Directive 2006/42/EF

- and the following harmonized standards have been applied.

DS/EN 12100-1:2005  
DS/EN 60439-3  
DS/EN 13857:2008

27. februar 2009

  
Jens Jørgen Madsen  
Direktør