

HER

Opleidingen & Advies

Transport & Logistiek | ARBO & Veiligheid



CURSUSBOEK

Working safe with

Forklift / Reachtruck



Course Book

Working safe with a

FORKLIFT-/REACHTRUCK

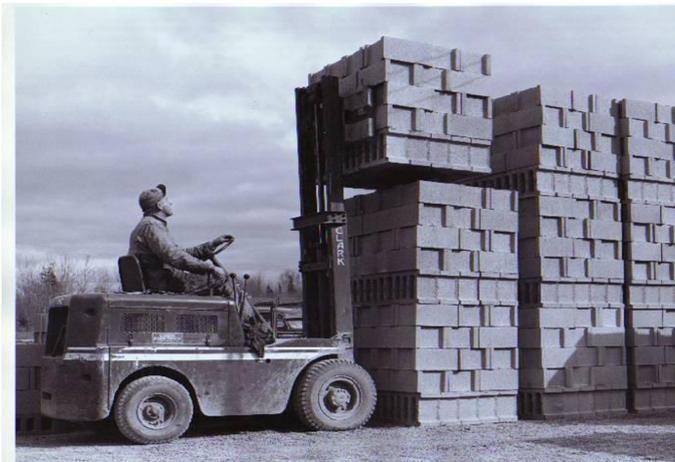
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INLEIDING

The lift truck has become one of the most useful tools in the workplace for moving products efficiently and safely. It helps to make production flow and increase productivity. So the lift truck has an important role in companies. In the past many labours were available to move heavy burdens, but now the lift truck has taken over these activities and in the mean time it has become indispensable in every company where goods are being transported.

It can have multi-operational uses in a variety of situations in the work place. Indeed in some operations at



the end of the production line the product comes off on a pallet and it is up to the lift truck operator to keep up.

If lift trucks are misused or used in an unsafe manner it can result in damage to plant and even injury.

Accidents involving trucks are high on the list of statistics for accidents to people and property in the work place. Many of these should never occur, as they are directly related to lack of knowledge and inadequate training of the operator and their supervisors.

In many companies almost every one is using the lift truck. However the problem is, that learning to

drive

a lift truck mostly happens by carry over knowledge, which is similar to an on-the-job-training. You learn the activities but you do not always know the significance of the techniques.

After some time the applicant driver gets enough skills and routine to be a "fully operationallift truck driver". This has led to the necessary claims and in the worst case even accidents.

This manual can possibly provide you of useful information for the future. Tips are given for a safe work environment for you and for others.

The purpose of the safety training is to learn the techniques, safety norms and other possibilities. This to raise awareness in the handling of lift trucks and other transport vehicles in the future.

Training is only the first step towards safety and efficiency. The operator should put all training into practice at all times. This will give greater confidence and ultimately result in a more efficient and safe working practices.

In this book we try to increase the knowledge and the risk factor of the incorrect use of an internally to reduce transport.

The risks of using a forklift are great, and there is much use of created by incompetent drivers. Often this causes accidents. Over 90% of all accidents are caused by human error and only 10% is due to technical problems.

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Chapter 1 The (ARBO) Working Conditions

Inleiding

If forklift driver safety is one of the most important topics. A safe behaviour prevents accidents and injury. Find annually approximately 1500 accidents where forklift trucks are involved. A large part of these accidents have personal injury as a result. Even with some accidents are fatal. The forklift driver must, he wants day in and day out, hour after hour serve the safety for the benefit of themselves and others, not only strictly adhere to the rules and measures but also the discipline to cultivate themselves that vei – safety. A daily control of the forklift hears this.

Why a forklift training?

During our work we have to do with the working conditions Act, commonly known as the Arbowet. In the Arbowet be given rules on the safety, health and well-being at our workplace. In this introduction, the content of the Arbowet in brief are discussed. In the following chapters will be entered on the safe work with forklifts.

Working conditions

The Arbo-law . the working conditions act-is intended as working conditions can be improved from that. The employer and employees must work together in this area, where the employer the – ken regulations state in the form of a policy. The appointments are made in consultation with employers and workers.

The purpose of the Arbo-law is the promotion of decent work. The law therefore calls for the employer that he takes measures that should lead to coordinated so well – ke working conditions within each company.

These measures are aimed at:

- -the greatest possible **safety**;
- -the widest possible protection of **health**;
- -the promotion of the **welfare** of the employee within the company.

These measures should be adapted to the general business policy. This means, that there are also limits on the OSH policy. The reverse is also the case, namely that in the conduct of the General should be what consequences this policy entrepreneurs constantly viewed has for working conditions.



The control of compliance of this law lies with the Labour Inspectorate

De Arbo law

The worker has not only rights, but also obligations. Care for safety, health and welfare at work is not only a responsibility of the employer, but also of the employee. We have under other law on codetermination but are also responsible for our own doings. The Arbowet also writes for driving a forklift that employees who must prove that they have had sufficient instruction to perform their work safely with the forklift!

Employers and employees must work together to ensure safety, health and well-being. Therefore obliges the Arbowet the employer and employee to cooperate. Cooperate and consult on every level in the company must be: between chefs and staff, but also between management and Works Council.

Directives of the Arbo-law

The Arbo-law imposes obligations on the employer, to the State of affairs in his company right. What freedom is there reasonable grants to the employer how he governs these matters. A worker resting also obligations. These obligations mainly come down to the observance of the rules within the company, tracking training and behave as a "good" motivated employee. On the following page are these guidelines elaborated for information globally.

Obligations of the employer

The employer is responsible in the first instance to a good health & safety policy. In addition, both employer and employees are obliged to ensure the safety, health and well-being.

Risk inventory

From 1998 is an employer obliged to introduce a risk inventory. The employer must be able to identify which risks the workers walk during their labour. The employer can do this on the basis of a checklist or to outsource to the Arbo-service.

Protective Equipment

The employer has the duty to ensure a safe working environment. In this environment can be anything happen, the employer must take care to provide by personal protective means. Also called PBM's. These are the latest expedients since you must tackle the evil at its source but that is not always possible.

Some examples of personal protective means are:

- helmet
- gloves
- safety shoes
- Apron
- hearing protection/eye protection



In organizing the work, provisioning of the workplace and determining production and methods of work, the employer shall observe the following points:

- choose such production and working methods that the greatest possible safety and health is obtained and welfare is promoted;
- In case of a dangerous situation must the employee rapidly can bring in safety;
- machines, tools and substances that could pose danger to safety and health, avoid;
- the establishment of the workplace, the working method and the tools need to be adjusted;
- account in the work with the worker as a person, E.G.,: age, gender, physical and mental condition, experience, craftsmanship and knowledge of the official language;
- the work may not adversely affect the physical and mental health;
- must work according to its sole discretion where possible to fill in;
- the possibility should be offered to contact colleagues to have.

Because it is a joint responsibility of ARBO-policy both employer and employee be called: also a number of General obligations of the employees;

- machines and tools must be used correctly;
- the personal protective equipment should be used;
- the protections of machinery etc. intact;
- contribute to information and/or training meetings;
- noticed hazards reporting directly to the manual.

Work Stoppage



An employee may pause as to his or her work, reasonable judgment, immediate danger to persons is looming. In disagreement with the employer about this work stoppage will be decided by the Labour Inspectorate.

It should regarding the work stoppage or contact with the Works Council and specially with the VGW-Commission (safety, health and Welfare Commission).

Machines and tools must be used correctly (work equipment) under labour resources includes all tools that are used in the work, ranging from simple tools to machinery and components of process installations. To safe and healthy work equipment must be able to work in good condition and properly to be used. Compliance with the requirements for work equipment is an obligation of both employers and employees.

Contribute to education and/or training meetings; Sometimes situations arise in the workplace which are just no accidents happen. Or we see cases endanger that. This almost accidents or hazardous situations we notify in the management, so that measures can be taken to remedy the unsafe situation. This will prevent accidents.

If not fulfilled the obligations of the Arbowet be may affect. The judge has the last word on the matter. The Court finds that there is unwillingness or negligence, then the judge may do the culprit liable criminally (n).



Labour Inspectorate

The control of compliance with the Inspection done by the service. If a company has a serious accident happens, then this must be reported to the inspection service.

Corporate Rules

In addition to the Arbo rules will, depending on the business situation, extra for additional rules needed.- These rules may relate to the use of the transport and storage resources, corporate clothing, workflow etc.

Also will be a company that has to do with internal transport, a business must have, that goes for all verkeersreglement employees and visitors of the company.

Working Conditions Decree

The decision concerning conditions at work, in short, is an elaboration of the working conditions Decree Arboret and elaborates on a number of specific situations. The working conditions Decree is classified by topic. Each chapter covers a particular topic (e.g. dangerous substances, noise exposure, personal protection). For a number of sectors and categories of workers, there are deviating and supplementary rules. The provisions are binding from the working conditions Decree, employer and employee are therefore obliged adhere

Labour Inspection (Inspection SZW)

The labour inspectorate shall ensure that employers and employees comply with the laws and rules in the field of working conditions. These are therefore include:

- the law minimum wage;
- the foreign nationals (employment) Act;
- the working hours Act.



Labour inspection powers

The inspectors of the labour inspection (inspection SZW) have access to all labour organizations, workplaces and homes and should include:

- measurements;
- photos and drawings;
- take samples;
- objects (or parts thereof) take away for research;

The inspectors can come at any time at a company, they are not obliged to report their arrival in advance. They always come along after a report of a serious accident in a company (permanent injury), for example, after a complaint or at the request of an employee. Employers, employees and self-employed persons are required to provide all data and information the inspectors.

Enforcement Policy

The enforcement policy of the labour inspection (inspection SZW) consists of three parts. When the labour inspection an offense notes, are first agreed in consultation solutions and deadlines. At the failure thereof, follows a warning. This helps also not, a process-verbal formatted.

If the Labour Inspectorate in a company encounters a situation where persons acute and serious risk (for example, if someone without a forklift forklift drive belt on or if the dangerous cargo transported than that the forklift can handle), then they will require immediate action. The Inspector may require the employer in that case immediately halt work until the necessary improvements were made. In the event of serious infringements or repeated can directly follow a warning or a verbal process.

Bestuurlijke boete

The labour inspectorate may impose a fine on both employers and employees, which is also called 'administrative penalty'. The height of this fine depends on the nature of the offense, the size of the company, the number of workers exposed to the violation, the number of times that the offence prevents and or there is a penalty imposed for the offence previously. See annex

Taakverdeling

The Labour Inspectorate is an enforcement and implementing organization of the Ministry of Social Affairs and employment (SZW). The inspection has a headquarters and six regional offices. Employers and employees have usually with one of the regional offices. These offices deal with enforcement of the law, licensing and exemptions and examination of complaints and tips..

Article 7.17 (c). Use mobile work equipment

1. mobile work equipment with a own drive are served by employees who possess a specific expertise.
2. . the transport of workers on self-propelled mobile work equipment is only allowed on specially furnished safe places.
3. If during the relocation of work equipment referred to in the second paragraph, work is performed, the speed of the work equipment if necessary, adjusted.
4. If a mobile work equipment is within a work zone where workers can, moves, be effective traffic rules laid down.
5. effective organisational measures shall be taken to prevent workers reside in the work zone of self-propelled mobile work equipment.
6. where, for the proper execution of the work the presence of workers in a work zone as referred to in the fifth paragraph, is required, effective measures be taken to prevent it by the mobile work equipment are injured.
7. mobile work equipment with a combustion engine are not used at the place of work, unless is ensured sufficient clean air.
8. a mobile work equipment is not earlier than after it is stopped by the driver left and is definitely stated that after leaving not inadvertent comes in movement. Algemene verplichtingen van de werknemers

Artikel 11

The employee is obliged to in his doings at work in accordance with his training and the instructions given by the employer, to ability to care for his own safety and health and that of the other people involved. In particular he is obliged to:

- work equipment and hazardous substances to use properly;
- the personal protective equipment made available to him in the right way to use and after use on the appropriate place to store, as far as not under this law stipulates that workers are not required to use protective equipment when executing such duties;
- the work equipment or otherwise not to change any protections or outside need to get away and to use this in the proper manner;
- Commission to work on the training organised by him remarkable for him the dangers for safety
- or health notified immediately to the employer or the person who is responsible on behalf of this spot with the leadership;
- the employer and the workers and the other expert persons, and if necessary the arbo service, to assist in the implementation of their obligations and duties under this Act.



What is the meaning of these obligations?

- that you are thus obliged to follow this training or training day as it relates to your own health and safety.
- When the employer has your safety shoes or other personal protective equipment, you are obliged to use this in the proper manner and during the work always to wear.
- the scissor lift or other lifting or hoisting equipment and transport resources you should use according to the Arbo-information sheets AI-14/17 and the safety rules in force on the holding.
- When there in your working conditions dangerous or unhealthy situations or existence, you are obliged to report this immediately to your direct boss, security expert or Works Council.
- All savers that have been made on the transport engineer you may not remove or disconnect (this includes any dodemansknoppen and Chair contacts).

Read various trucks for the use of the accompanying instruction booklets carefully.

And keeps you on the safety instruction specified by the manufacturer. Such manual must always be present in the language of the user.



Chapter 2. Means Of Transport

This chapter describes the many possibilities of means of transport which we mostly discussed in companies. All the ins and outs, along with a number of examples will pass the revue. The business is also dependent on what means of transport will be deployed internally.

Internal transport



In almost all companies you see different internal transport. As we know, among other things:

- Elektric pallettrucks
- Stapelaars
- Ordercollector
- Forklift truck
- Reachtruck
- Combi truck
- Side Loaders.

In short, a multiple of labour resources in the workplace and the responsibility for user can be very large. The core task of the use of this is: the good and safe moving of the goods.



Elektrische Pallet Truck (EPT)



The EPT is actually a motorized pump truck. The driver can either be behind the EPT, but there are also models where the driver can stand on it.

It is forbidden to stand or to sit. The driver can then easily become entrapped between the EPT and, for example, a pallet or a wall.

The EPT has the following characteristics:

- equipped with one or with two electric motors.
- When EPT's with one electric motor should be inflated manually.
- When there is a separate EPT's with two electric motors and a row-helmotor engine.

Stapelaar



The counterbalanced forklift is mainly used for stacking of pallets. The tool has the following features:

the middle of the forks always remains between the front and rear wheels

so there is no counterweight is also needed

The counterbalanced forklift is less suitable for loading or unloading of lorries, because the outriggers to which the front wheels protrude outside the pallet are confirmed.

Hoogbouwtruck



The high-reach truck is generally used to transport loads in which the height objectives are as wide as the truck itself.

It has the following characteristics:

- Capable of recording of loads at high altitude.
- Cargo is deposited, the forks board is sideways swivel.
- Particularly suitable for use in very narrow corridors.

Forklift truck

The forklift is used primarily for horizontal and vertical transport, and is no longer part of our society.

There are 3 species and to obtain different variants including the:

- Electric forklift
- Diesel forklift
- LPG forklift



- burden lies for the front axle, so usually a counterweight needed
- suitable for both horizontal and vertical transport
- can be powered by different power sources, (electric, diesel, LPG)
- the can between 300 and 80,000 kg lift capacity.



42-tons Linde H 420

Because the forklift is used in many variations, it is necessary (working conditions Decree 7.17 c) to train everyone to specifically expert.

After all when users work within a logistics service provider and here working with a forklift 1,5 ton, then this is working with other hazards and risks than when the user works with a large truck.

By the user on the right way to train the risks and hazards in the workplace are limited and there will be fewer accidents.

The use of forklift trucks

To be safe with a forklift to go it is necessary to know the basic characteristics of the vehicle. We assume that we need in this course little to explain about how a forklift or reach truck looks, but give an overview of the components used in the different types of coming back.

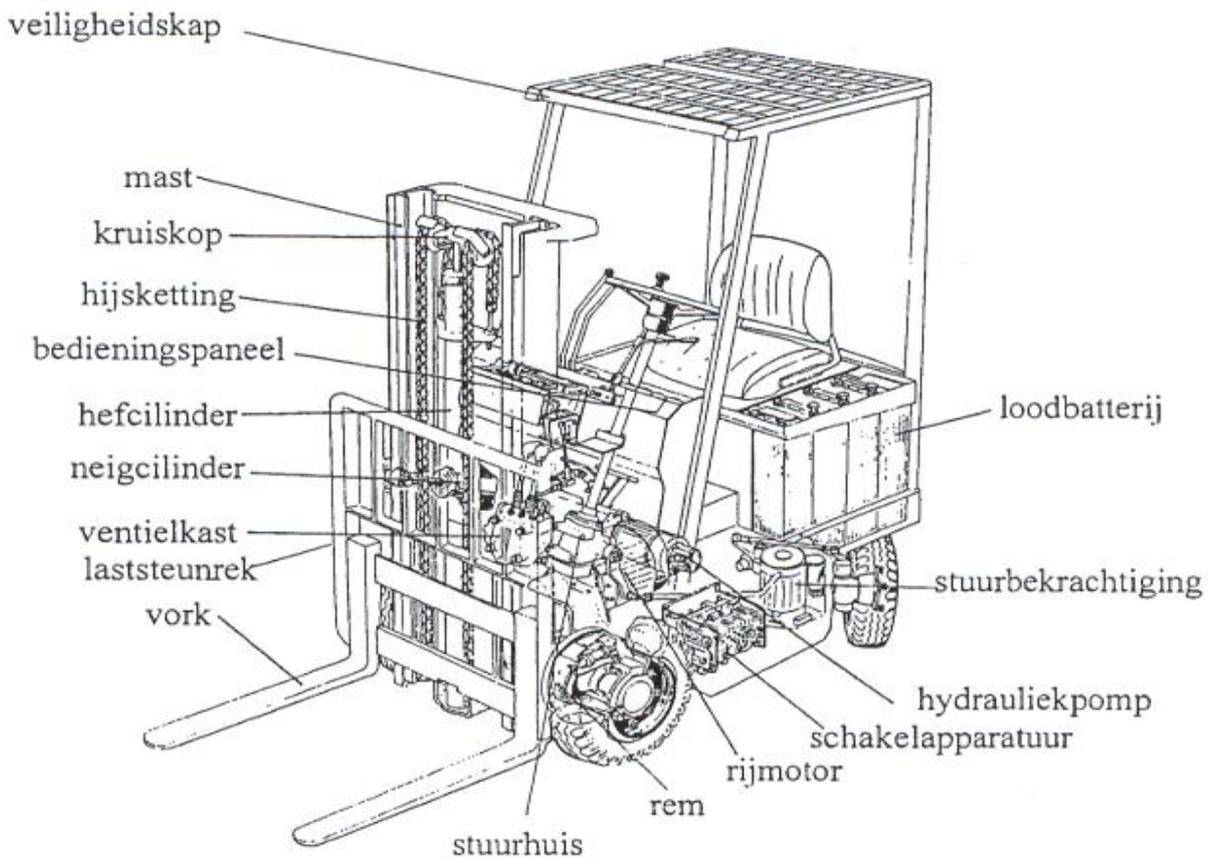
In addition to the forklift or reach truck, we know the hand-and motorpallettruck. There is even an explosion free forklift truck.

A forklift driver has certain tasks where he is responsible for such as:

- the State of his truck;
- Transport of goods;
- Loading and unloading of goods;

The core of the task as previously discussed of the forklift driver is therefore: the good and safe moving of the goods.

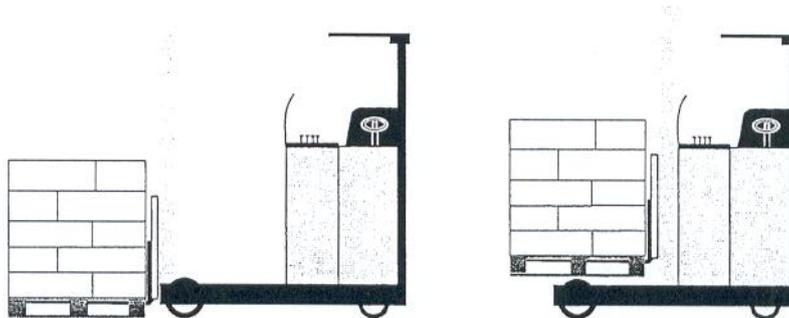
Below you will see a display of the components that make up most of lift trucks exist;



Reachtruck

The reach truck is a special type of forklift, used particularly in objectives and small spaces. The reach truck has the following characteristics:

- The mast forward and move backwards.
- The load lies above or behind the withdrawn mast for wheels.
- the driver sits or state cross on the truck.



Characteristics of the reach truck

The reach truck is outside the ' normal ' forklift truck one of the most common tools in the internal transport.

Always drive with ingereachte mast. This is the stability. The reach truck is mainly used for high marketing heights. Let therefore the stability, because: the higher the load, the less stability.

Drive with a reach truck backwards as far as possible, this is good for security. You have so namely the most overview.(Reversing at a reach truck is with the body forward.)

Internal transport means you come against everywhere. The truck then find also among others;

- Companies in the production.
- Wholesalers.
- Logistics service companies
- Food Industry.

But you will also find this garden centres, construction markets, we also visitors come there. This requires even more responsibilities than next to the operating skills of the user.



Many of the internal transport means are used for the transport of goods daily. A pallet truck mostly for small and fast acts whereby the forklift the larger work takes.

At logistics service providers can it be so that the truck sometimes used by several people. Just think of the loading and unloading of a truck.

Employees, who need a forklift, packs this wont. There is here no work planning created for the deployment of the forklift. Ride on a forklift truck often unauthorized employees. This is contrary to the working conditions Decree art. 7.17 (c)



The truck can also be used by different employees, however it remains wise to let the people for this specific train.

Forklifts are depending on the industry and business situation everywhere else used. One company more than the other company.

In commercial companies or logistics service providers you see that employees often have fixed tasks, for example:

- the loading and unloading of the cars;
- the order collection or package.



It is therefore common for a day's work for a forklift driver companies provisioning. The forklift is then used throughout the day. If a company in two teams system works, then it may even be the case that the forklift 12 or 14 hours in use. In this case, the companies will often work with an electric forklift truck. In the event that the truck after the active 8-hour service is empty, then the user should discuss the "empty" battery. This allows the forklift be used longer.

Through various ways one can exchange the battery, this will be more attention later in this book.



A forklift will then also can be used in different ways where one forklift will be used more often than any other forklift truck.

It is therefore also important regardless of the use of the forklift that the driver has the appropriate capabilities. A forklift driver who works the whole day on the forklift., has called on more skills.

The tasks of a forklift driver are as follows;

- checking the forklift at the start of the day;
- driving with the forklift;
- moving expenses;
- laden and unloading;
- parking of the forklift.

Anyone who directs his work a forklift, safe and good will should do and must adhere to the Arbo-law and possibly the business rules.

The responsibility of a forklift is very high. The materials and goods with which one has to do, can vary from € 1.00 to € 1,000,000 euro and even higher.

Who can drive a forklift?

A driver of a forklift must meet the following requirements:

- he needs skilled (the Arbowet speaks about have had sufficient instruction);
- He must be specific expertise; • He must be at least 18 years old; (Note: there are exceptions)
- he must be appointed by the company.

This above also applies to other mobile work equipment such as;

- Motorpallettruck,
- Stapelaar
- Reachtruck, enz.



A forklift driver must be 18 years (indicated in the Arbowet). This is because one speaks about a motor vehicle and the minimum age for such a vehicle is 18 years. It is permitted to 16-and 17-year-olds to let on a forklift driving, but then there are always knowledgeable and constant monitoring.

It is not allowed to let multiple youngsters riding a forklift while there 1 certified person supervision hold. Also it is not allowed when a person older than 18 years under surveillance to make it work.

Use of personal protection Means

Employers must make available free personal protective equipment and ensure proper information about the use and maintenance. This also applies in cases involving the use of personal protective equipment is not legally required.

In the risk inventory and evaluation (RI&E) should be the necessary personal protective equipment described. The employer bears the cost of personal protective equipment, but the choice make of employee and employer together. Employees can use their knowledge and experience from practice, make an important contribution to the purchase of the right resources.

Personal protective equipment will always complement measures that tackle the risks at the base. Such measures include:

- good maintenance on machines
- timely replacement of outdated machines
- commodities
- safer alternatives for use of affixing of soundproofing
- technical facilities take
- customize method

Employers Obligations

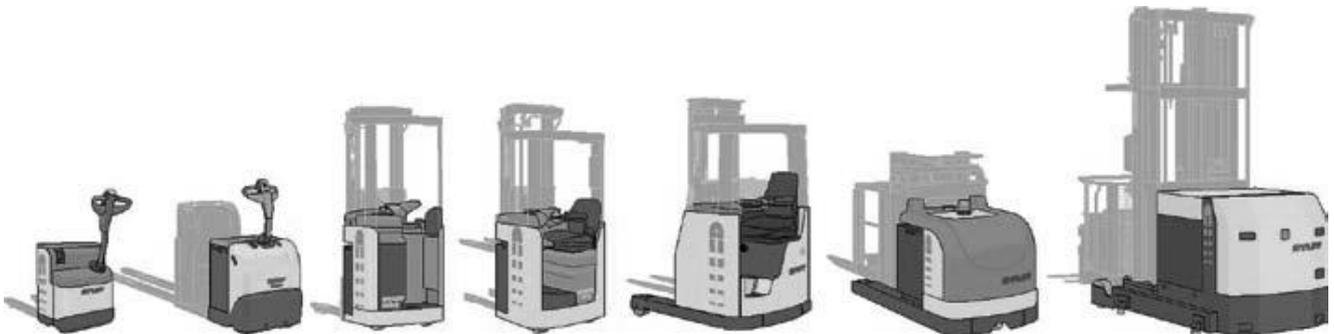
The employer:

- provide PBM to his employees free;
- gives the necessary information and instruction on proper use and maintenance;
- indicates where PBM must be used;
- oversees the proper use;
- makes agreements about maintenance and replacement.

Employee Obligations

The employee is required to use the provided:

- PBM;
- to participate in information and instruction;
- PBM to maintain and properly store.





Which employees get what information?

It is important that everyone is aware of all dangers and risks with respect to his or her work. It is therefore of great importance to each point through the right training. The responsibility therefore lies primarily with the employer hereby.

Risks

Anyone who works should be concentrated. Dangerous work often go hand in hand with risks, while also contain simple work risks. We must therefore weigh the risks we take and every time we look at where these can reduce the accidents.

Wat is een risico?

The meaning of the word risk is defined as follows:

THE PROBABILITY OF AN UNDESIRABLE EVENT

Quality and responsibility

Quality

A good forklift driver is for the right quality of work. Because the increasingly competitive, it is also important for the forklift driver to work properly and responsibly. When forklift driver in busy periods should work faster than that will be at the expense of the current quality can go. There are more mistakes made, and a forklift driver runs a greater risk of a damage. It is also routine of the work also a dangerous situation, where older workers feel "easier" to work by their experience. This says nothing about quality.



Companies do there is often good to certify their business. This can then be also demonstrated that the employees according to certain directives work with demonstrable qualities become visible.

Responsibility

All the efforts of the forklift driver with respect to safety, health and quality, of course, have everything to do with his or her personal setting, attitude and mentality.

So you can say that the profession forklift-/reachtruckchauffeur a very large sense entails.

But it is so often said: "you are responsible for the quality of your work." "You are responsible for operating the forklift". "You are responsible for the tasks that your employer has instructed you".

But what exactly is "responsible"? There are very many things where one is ultimately responsible for.

What question? A question about your work, which you can give a good and reasonable answer. Can you get a good and reasonable answer to the question about your Act, then that means that you can carry responsibility. This is totally loose or the action error or good.

You can understand the risks, dangers and consequences.

Responsible to say, that one always a good and reasonable answer can give to questions from others about you must personally Act.

In organizing the work, provisioning of the workplace and determining production and methods of work, the employer shall observe the following points:

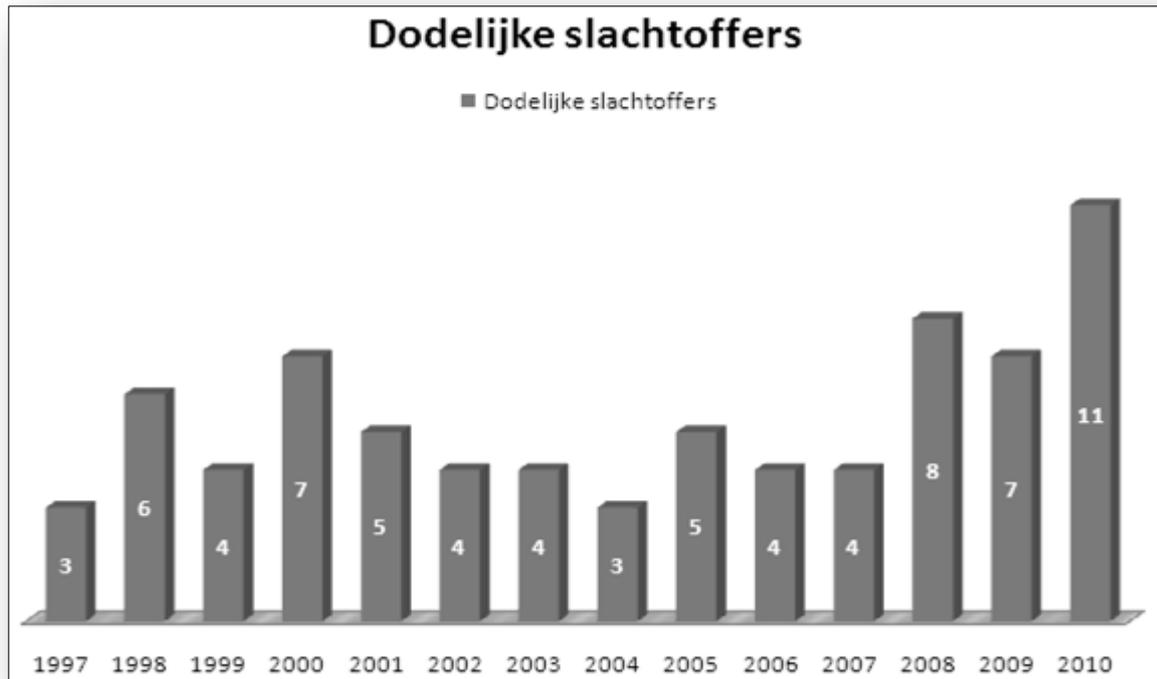
- choose Such production and working methods that the greatest possible safety and health is obtained and welfare is promoted;
- In case of a dangerous situation must the employee rapidly in safety can bring;
- machines, tools and substances that could pose danger to safety and health, avoid;
- the establishment of the workplace, the working method and the tools need to be adjusted;
- ongevarieerd, short and monotonous work, where the pace of work is determined by the machine must be avoided;
- take into account in the work the employee as a person, e.g.: age, gender, physical and mental condition, experience, craftsmanship and knowledge of the official language;
- the work may not adversely affect the physical and mental health;
- work must to fill in where possible according to own insight;
- the possibility should be offered to contact colleagues to have.

Because it is a joint responsibility of ARBO-policy both employer and employee be called: also a number of General obligations of the employees;

- Machines and tools must be used correctly;
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- participate in education and/or training meetings;
- Noticed hazards reporting directly to the manual.

An employee may pause as to his or her work, reasonable judgment, immediate danger to persons is looming. In disagreement with the employer about this work stoppage will be decided by the Labour Inspectorate.

It should regarding the work stoppage or contact with the Works Council and specially with the VGW-Commission (safety, health and Welfare Commission).



General requirements

Within the EU it is obligatory that products sold or produced must meet minimum requirements. These are requirements that relate to the safety and the quality of the product therefore the manufacturer and suppliers of the forklift is faced with different requirements which the transport engineer must meet. The main requirements for registration in the Arbo-decision labour resources.

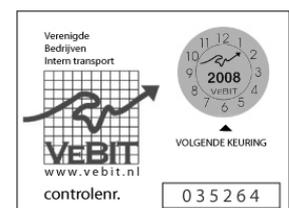
CE kenmerk

The CE marking is not a hallmark. The procedures for the affixing of the CE marking are based on the EU-Council decision 93/465/EEC. The reason for this decision is "Europe 1992" in which the free movement of people and goods being pursued. The different national requirements that were in effect until that time. The purpose of the CE marking is therefore twofold in nature. On the one hand, the aim is to promote free trade within the Member States while, on the other hand, safety in the use of the products is increased.



Check Up

Article 7, paragraph 4a mentions that *"a labour means that is subject to influences that lead to deterioration, which can give rise to the emergence of dangerous situations, so often this to ensure the good condition is necessary, qualified"*. The approval is thus periodically on the basis of the Arbo-mandatory regulations.



Arbo wetgeving

Article 7.4 (a) mentions that *"a labour means that is subject to influences that lead to deterioration, which can give rise to the emergence of dangerous situations, as often as this-to ensure the good condition-is necessary to be approved"*. To determine the frequency, you can run a risk inventory and evaluation. If lower_limit can be held once a year.

The written evidence of the inspections must be present at the workplace and can be shown upon request to an official of the labour inspection (inspection SZW).

Chapter 3. The Reachtruck



Inleiding

Because many companies are growing, they will need to make use of other options for loads to transport or store.

Therefore one sees more and more increasing changes in the corporate culture and the accompanying materials. In the growth of the business activities will therefore also have to take into account other transportation means.

The forklift is only limited to the reach out to specific height while the reach truck it is much more flexible.

High-rise warehouses are nowadays more order of the day. Companies are expanding their capacity than also prefer to the shed of their storage possibilities.

The reach truck is therefore ideally suited to do this work, however, the user must have a specific expertise with the reach truck able to work safely and efficiently.

By its compact building is driving this transport easier. The transverse seat ensures good visibility in both directions and prevents the driver his upper body should run.

Adjusting Floor

With a forklift in there where one can maneuver,

normally a rack/bar is this one a reach truck else. By its compact construction are the aisles narrower and more risky for the driver. However well-trained persons are able to do this in a correct manner. The aisle of a reach truck is usually many times smaller by its construction. A forklift can not include herein so loads and marketing.

Driving with the Reach truck

Exactly like the serve the forks of the reach truck on 10-15 cm above the floor. The pallets can be picked up in two ways, i.e. both in length, as in the width. Users should however to take account of their front wheels there it is possible to pallets between the front wheels. Is it not accurate here, doing damage to pallets can easily be caused.

Roadmap

When picking a load from the rack it is easy to determine from which side the driver in advance cargo may include it is therefore important to know the vehicle well justified there. From the front of the front wheels to the points of the forks often determine the minimum space between the side of the reach truck and the rack/bar.

The user should the reach truck in a safe manner for the rack/bar to post without damage to the underlying load or objective is caused. It is therefore wise to a safety margin of min. 20 cm to handle measured from the front of the front wheels and the rack/bar.



By the sheer height that reach trucks can achieve there are many tools on the market that make easier the work at high altitude.

To think than to

- digital height gauges
- Camera systems

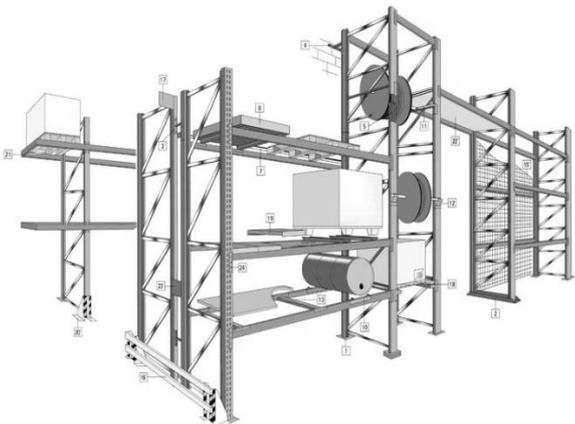
Another way is to make simple signaling or reference marks on the static mast. On the movable mast puts a different character which upon reaching the desired height easy it can determine.

Most easy involve, than to think of the VG. Plug-in Height.

However, one should take into account the State of the mast, and any wear on the tires.

To observe the safety safety with a reach truck, it is important that the reach truck enter an aisle in a proper way. Because the sight of a reach truck located on the achterzij the best is, one should also the stack/rack/bar this way paths. As a rule of thumb, one can therefore take; "backward

walk in the stack/rack/bar; the stack/rack/bar gang from "backward.



Some important suggestions

- keep in mind that when working in an aisle there are no other employees in the vicinity of the truck;
- work always at a leisurely pace and do not hurry, this can quickly occur errors and damages;
- keep in mind that when one works on a great height the mast and cargo become unstable;
- place the loads always right on the girders of the stack/rack/bar;
- damage to cargo and/or objectives should always be reported to the Executive;
- Drive only with stable cargo



Driving the reachtruck

When we work with a reach truck, then it's good to know that driving should be driven backwards as far as possible.

- the views of the seat is much better;
- but also the location of goods is more visible.

The pallet must be good on the girders rest and should not unnecessarily protrude forward or backward. (max. 1 to 2 cm crossing) The burden on all sides, 5 to 7 cm free space.

After the load is deposed and the mast again fell to the zg. row stand reach truck may sue his way again. It can also be that during the fall of the mast the reach truck drive backward. This drive should only load. When driving or should be taken into account with the 10/15 cm fork height of the truck.

Training

During a workout, you learn responsible dealing with a reach truck. It's different driving and work with a reach truck than with a forklift. The transverse session makes a reach truck or more manageable for the driver.

Inside or outside

Many reach truck are only usable for within and between the warehouse objectives to drive. Occasionally it comes ever for that one with the reach truck outside the company. This may include the risk that the stability otherwise which caused accidents.

Therefore, an ordinary reach truck with solid tires only to work and to ride on a solid and flat floor. However, within and outside the company to be able to work or drive there reach trucks equipped with volrubberbanden.



Heavy loads always bottom of the stack/rack/bar places!

Chapter 4. Working safe with internal transport

Working safely is the starting point and if you have a space or coasting, row, then always with the truck backward inwards or outwards. Many companies have in the overhead doors zg trip flaps hang. By clicking the right way to ride with the forklift truck driver prevents the unnecessary risks. The distance from the back of the truck to the driver's seat is much shorter than the distance from the front of the cargo or forks to the driving position, making passing vehicles or pedestrians rather be noted.

If you're in a path forward riding a turn approaches, the front wheels are equal to your row by using the angle of the pallet. Then you turn the steering wheel only. The front of the truck runs in the desired direction, because the inner front wheel serves as pivot point of the forklift.

NOTE THOUGH. Sends one much, then one will also have to correct a lot. Driving with the forklift is in certain cases whole depending on the load and location.



Unstable loads

Driving with an unstable load is very dangerous and therefore not allowed. Make sure the load well and in context is stacked. Loads scroll that can go better with a rope or band may be bundled, before they are included.

Good Housekeeping

Let no empty pallets lying around! Sooner or later they are damaged, or damaging them the forklift truck. They are also a serious stumbling danger.

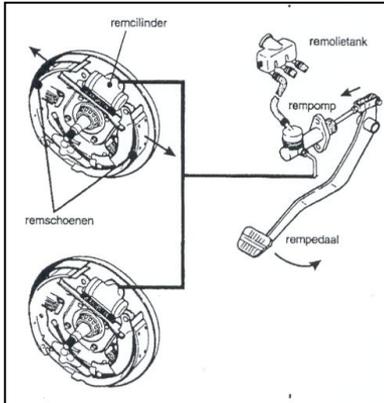
If you go with the steering wheels against a pallet or another obstacle, then can the wheels with certain types of forklift trucks overturning. The steering wheel is spinning than forced. This can cause injury to the hands or arms of the driver.

It is a joint responsibility to take care of the cleanliness of the warehouse. A tidy workplace also contributes to the General safety within the company.

The Braking system

General braking system

Forklift trucks and trailers whose own mass and the maximum working load together exceed 1500 kg, must be fitted with a sound and efficient be – drijfsrem and parking facility. This works in most cases, hydraulic braking system. This means that the brakes work by means of transmission by liquid.



When a forklift is moving, the possession a quantity of motion energy. The brakes have to destroy this energy to the whole task to halt.

The friction between the brake linings and brake drum and the grip of the tires on the floor need to care. The destroyed energy is converted into heat, which can be delayed by prolonged brakes very high. Also the foot on the brake pedal driving through it with the danger is that the temperature is very high. Ultimately this may result in fire. It goes without saying that the brake linings than extremely fast wear out.

Force service brake

With most trucks are only the front wheels rear axles. Behind the front wheels is a brake drum. In the brake drum brake shoes made, what are two movable when pressing the brake pedal are pressed vigorously against the inside of the brake drum. This creates the remeffent.

The Hydraulic Braking System

The hydraulic braking system consists of:

- the foot pedal;
- a brake fluid reservoir;
- a master cylinder;
- tubing;
- wheel brakes;
- brake shoes.

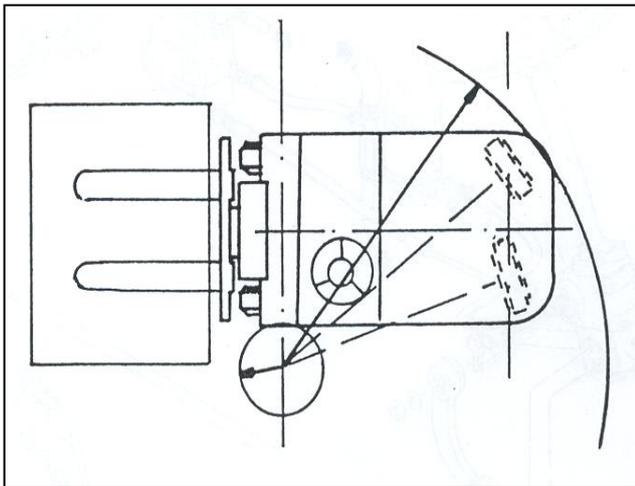
Functioning parking brake

The parking brake is usually carried out mechanically. This means that the braking force not caused by fluid pressure, but by steel cables. The parking braking system is separate from the service braking system. The advantage of this is that the parking brake may be used as an emergency brake, when the service brake fails. It is therefore at an emergency brake.

Steering

There are two different steering systems that are used when a forklift:

- the four wheel forklift;
- the three wheel forklift.



Four Wheel Forklift

In driving a four wheel truck turning the rear wheels to so-called fusees. The word literally means: "swivel deelas" steering knuckle.

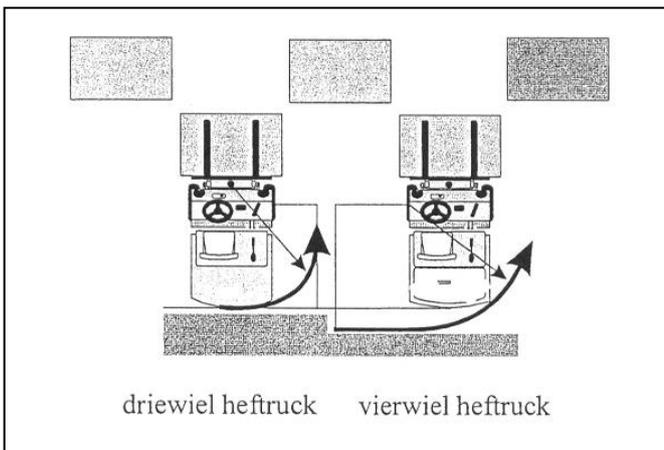
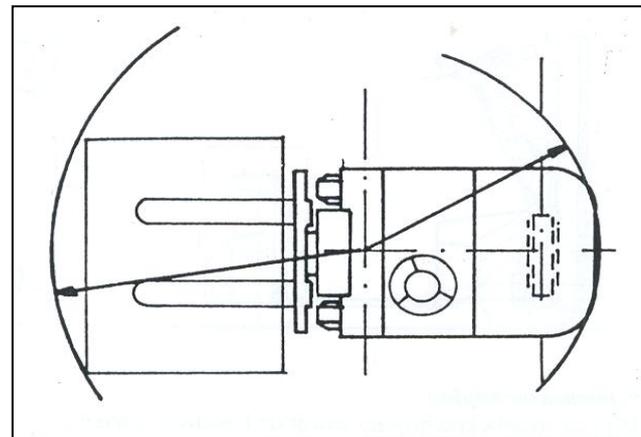
By turning on the handlebars is transferred on a short horizontal axis movement. The stuurarm that has been confirmed is thereby moved forward or backward. So is the handlebar, which is connected to the wheels, pushed forward or backward. Thus the Steering movement in the interconnected wheels to stand.

Three Wheel Forklift

The control when a three wheel forklift is different. The rear wheel is driven via a chain-transmission in the desired direction rotated.

Power Steering

At a steering control is regulated wholly or partially by using a double-acting hydraulic cylinder. Not only to the Steering, but damage to the overall steering mechanism with a stationary truck arises when the wheels are moved.



Difference in driving behaviour

The three wheel truck has a shorter turning radius than a four wheel truck. This is because the pivot point (the imaginary point around which the forklift runs) at a full twist in the middle between the front wheels.

At a four wheel truck is the pivot point a full turn on or near the left or right front wheel.

Stability

The advantage of a three wheel truck is so its smaller turning circle. The disadvantage is that these trucks sometimes slightly less stable. This is located on the surface of the stability level. To get better visibility on the crossover phenomenon of forklifts play a role of importance: the two points forward and the lateral stability of a truck.

The forward to stability is at risk if there is a heavy burden on the fork is taken. The forklift threatens to tilt the front axle than about. This same risk increases at high lift, strong brakes and fast forward tend.

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At an unladen truck takes the weight on the rear axle and moved the Centre of gravity therefore backward, toward the top of the stability triangle. The distance to the crossover lines is shorter and the possible tipping point is reached much earlier.

Tilting

Moment this stability level also gives the border of the tilting moment. Each forklift (with or without load) has a center of gravity. This gravity is usually indicated with the sign on drawings: (see image opposite).

This centre of gravity sits on a certain height from the ground. For example, when by a combination of loading and too hard by the bend go wrong this gravity outside the stability level comes, it will turn the forklift.



Provisioning Requirements

Orange triangle

When a forklift to use the public highway, the forklift in accordance with a number of vehicle requirements in order to be. One of these requirements is an orange triangle with truncated corners, this must be affixed to the rear. Specifies clearly that the traffic coming back may take into account "slow driving".

A number of other requirements that the vehicle regulation (VR) sets are:

Lights.

The lighting at the front must consist of:

- two city lights;
- two dipped-beam headlamps.

The lighting at the rear must consist of:

- two position lamps;
- two or four red, not triangular reflectors.

Also need the forklifts are equipped with:

- brake lights;
- directional pointers;
- Alarm lights;
- mirrors.

Shielded forks

If the truck is driven on the public highway must the points of the fork tines are shielded, for example with a car tire or pallet. Through this way, one can safely on the road.

Insurence

Each forklift should since August 2000 WA (= legal liability) to be insured. This is regulated in the law liability insurance Motor carriages (WAM). Driving a means of transport that is internally not WA-insured, is an economic offence and both driver and holder of the vehicle thus in violation. The Labour Inspectorate will monitor and occur in the future are more stringent this.



Safety Belt

Since 5 december 1998, the Government has determined that, within the use of internal transport, the duty belt is set for the user. Any motor vehicle with some exceptions must be performed with a safety belt. Exceptions include the reach truck, pallet truck and stacker.

Other exceptions can by means of adjustments: tilt Closed cage and security (Nod bracket). The sanction that can be imposed by a controlling body (inspection SZW) can reach up to EUR 450.00 for the user.

MAINTENANCE AND CONTROL GENERAL

Control of the forklift

Before a transport engineer at the beginning of the working day or after a change in use, service to take the driver must convince themselves that the transport engineer in good working order and that all belonging to the normal equipment of the tool control and security establishments are present and functioning properly. This is for the safety of great importance.

If first we look at the checks which must be carried out on all lift trucks:

Damage

For the beginning of the day's work must be checked for any damages the forklift. There is damage, reports this than direct. Also, make sure there is no oil under the truck. This indicates a failure of the braking system or for example on the forklift lift which is unusable.

Hefketting en vorken

Also the hefketting and the forks should be checked. At hefkettingen we check whether these are sufficiently lubricated. The chain links and pins should be checked on carved out holes or cracks. Pens and pencils close should be checked also anchor.

At the forks should be checked or the ends of the two forks are equally high. There may be a difference of up to 20 mm. There should also be considered whether there are cracks in the heel of the forks have emerged. The forks are also checked for wear.

Tyres

Tyres the tyres must regularly be checked and, if necessary, must be brought the band back on the correct voltage. The manufacturer of the forklift has the prescribed tire pressure listed in the instruction booklet.

At both tyres must be checked as volrubberbanden treads on damage. Also check the wheels, rims, bolts and/or nuts.

Brakes

To make sure that the brakes work, there need not immediately with the forklift to be ridden. By pressing the brake pedal with low strength we can verify that the braking system not leaking. Thereafter the braking system to be checked by a brake test. You do this by driving forward and pressing the brake. Enough (against) the brake pressure is still no guarantee that actually works.

Chair

Because while working with the forklift driver can get the burden of vibrations and shocks, most trucks equipped with a Chair that is adjustable in different ways.

The Chair we should set one:

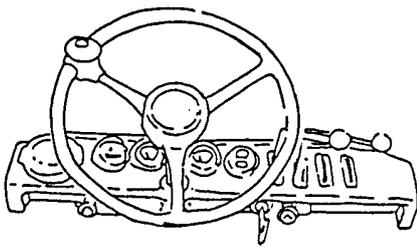
- A good support in the back;
- Easy access to all levers and pedals can, if necessary, also the Steering heights.

Safety Belt

Trucks have been produced after 5 december 1998, must be equipped with a safety belt. The reason for this is, the number of wounded at a canting forklift, to reduce as much as possible. For trucks that are produced for 5 december 1998, is a bridging period of 4 years.

So always use the safety belt. From 5 december 2002 this is also made mandatory by the Arbo-law.

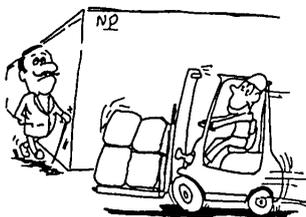
Steering



We must check in driving an eventual send backlash is present. This can be done by the steering wheel to rotate left and right up to the moment they encounter resistance. If there is present too great a freestyle, one can not accurately using the forklift truck. At trucks with steering the contact must first be enabled. Maximum allowable backlash on the steering wheel is 1/4 or a quarter turn of the steering wheel.

Hour Meter

The time counter is an important tool in the maintenance of a forklift. The hour meter has approximately the same function as an odometer in a car. Only when we have a forklift to nothing except a odometer, because we use to drive a forklift also for stacking. Determine the number of hours worked the servicing.



Claxon

To pedestrians, colleagues and other forklift to warn drivers of dangerous situations, the functioning of the Horn is very important. Note: use only a warning signal. Beware with overuse, this almost certainly leads to accidents.

Lights

Is present on the forklift, then this should also be on the lighting correct operation to be checked.

Hydraulics

Since the lift hydraulic works (using oil pressure), it should be checked whether there is enough oil is present in the system. There must be sufficient oil to the mast completely out to advance. In addition, there is still oil enough to lift frame front and letting sit tend. Moreover is immediately checked whether the apparatus works well. There Is no oil should be enough, then there will be oil in the reservoir topped up. The control valves must be set at zero tooth rebond.

Note: this refill needs to happen with the mast completely withdrawn and also with the right hydraulic oil (see the instruction booklet).

Note:

If there is any defect or a defect to the forklift is found, this should be immediately reported.

A forklift which a defect is determined, making it safe use in danger can be established, should not be taken in use before the sound is restored.



Chapter 5. Driving with internal transport equipment



Traffic regulationst

When regularly taking place within a company internal transport with handling equipment than the company must draw up a corporate verkeersreglement. If it is possible fixed transport routes (lanes) should be depicted and be clearly marked. Stack corridors, hallways and storage areas are no objective transportation routes.

The common traffic rules in the rules should correspond to the traffic rules which apply on public roads. Everyone working within the company to receive the business and thus should verkeersreglement known. Zonnodig should be translated and explained the rules if foreigners are employed in the company.

Transport routes

Transport routes are roads which, regulated, with daily traffic handling equipment takes place. They must be sufficiently broad and rounded at the corners and crossings are sufficient. Transportation routes and other roads, kaden, floors, loading platforms, landings and areas where traffic with handling equipment must:

- possess Sufficient strength and where possible lie horizontally;
- Solid and flat and are equipped with an anti-slip and abrasion resistant surface;
- Where necessary, alternative places or special paths for pedestrians.

RULES WITHIN THE COMPANY

Also within the company apply some safety rules. The main will be treated below.

Driving

Drivers of forklifts should always be:

- driving with low burden levied, except for picking or dropping the last in bv. a stack/rack/bar;
- Reversing the burden if the shape or size of Vista hinders forward;
- Reversing in chaotic situations;
- with forward and backward against a slope approach last: off;
- keep sufficient distance to other transport equipment;
- the running speed adjust to the circumstances;
- use the Horn in chaotic or dangerous situations.

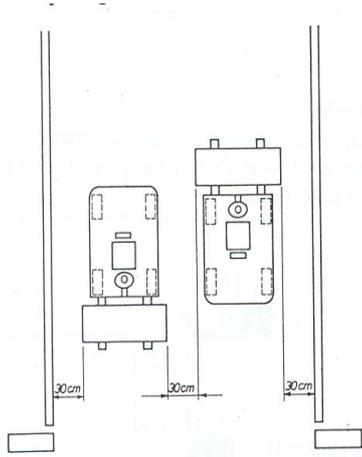
"Passenger transport with a means of transport is not allowed, unless this can be done in a safe and responsible manner in an effective, specially designated and furnished or pitch"

Parking

Parking of the forklift:

Forklifts should never be parked on a slope but at an indicated place;

- Parking on the transport route, never in contention for doors or passageways;
- From parked forklifts should be included or removed the ignition key;
- Lift trucks parked on the floor must be unloaded with lowered fork and slightly forward sloping mast (well tuned lift truck);
- the rear wheels of the truck right should stand;
- Handbrake of the forklift must be attracted.
- Please also note that the forks at least 20 cm from the points are free.



Transportroutes

If on the connecting roads with vehicles daily traffic governed or handling equipment takes place, talked about transport routes. In this case, the necessary traffic rules are adopted in the form of a traffic regulation.

For reasons of visibility and respect life can best be connected as much as possible with the provisions of the public highway, the RVV.

Transport routes should be kept free of obstacles. Often one would be able to compare a transport route with the business floor. The forklift has a total weight and therefore there are conditions to which the floor must meet.

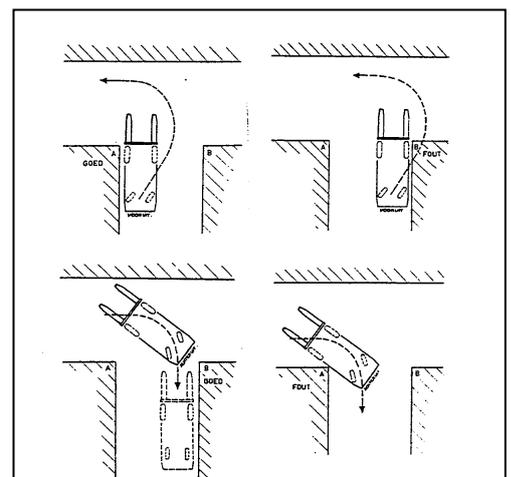
Transport routes which only takes place must be at least 2 x one-way, 30 cm wider than the widest loaded vehicle for which the route is intended;

Transport routes which takes place in both directions, traffic must be at least 3 x 30 cm wider than twice the width of the widest laden vehicle, for which the route is intended; where necessary, alternative places or special paths for pedestrians. Further transport routes: sufficient standing;

- where possible lie horizontally;
- solid and plane;
- are equipped with an anti-slip and abrasion resistant surface.

Pre-sort

Note When you create a curve on the tail swing of the last and of the forklift. Sort by for the way such as is depicted. Note the pivot point of the forklift truck. At a bend to the right turns the back of the truck to the left. It should take account of the forklift when taking a turn to avoid damages.



Chapter 6. Forks construction and equipment

The forks construction exists (usually) of the following components: a metal mounting plate which the forks, the forks itself and possibly hang the loadingrack.

To be safe you need to check the following work:

- the forks must be well secured;
- the loadingrack must sit firmly;
- the thickness of the forks at the heel must at least 90% of the thickness of the vertical section;
- the difference in height at the ends (points) of the forks can be up to 13 mm;
- the angle of each fork mag if maximum squareness 90°;
- There should be no cracks or holes in the forks.

In addition to the forks can be mounted on the forks Board different tools also called attachments. Examples of attachments are:

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • Forks, extenable forks; • Tilting Device; • Rollerclamps; • ForkClamp; | <ul style="list-style-type: none"> • Spreader; • Bale Clamp; • Barrel Clamp; • Crane; | <ul style="list-style-type: none"> • Snowplow; • Shovel for bulk good; • Rock Clamp; • Turn Forks. |
|---|---|--|

Note: To change the lift capacity of the forklift truck pieces goes. The last diagram on the forklift will need to be adjusted if you equip the forklift with a carpet doorn. Suppose we take a role carpet of 2 metres (2000mm). then lies the Centre of gravity of the load at 1 meter (1000mm).



On most standard burden comes this centre of gravity distance not for diagrams. You should also take into account, that the piece has an own weight converter. That is often higher, than the forks Board. If the trucks are equipped with a converter manufacturer must ensure a custom piece will last diagram. This forklift equipped with forks and with the occasional piece than the forklift truck will last two diagrams should have. The last chart is not covered by the APK duty.

The converter pieces on the next page to move goods are in a special way. The application of clips you see the most. You should then think of paper rolls or rolls steel. White goods such as refrigerators and washing machines but also parties can be clamped.

This can be transported without pallet.

Protective containers for the transport of persons

Employees on the forks are often brought up to a light bulb moment to Exchange or even a box to pack. The lifting of persons in this way is prohibited. We want to lift persons then we should do this by using a beschermbak where an employee protected in can stand without falling.

A pallet on the forks and then stand on a pallet is also not allowed. Many accidents happen each year because employees of forks or fall with their hands between the sliding parts of the mast. There can be worked with the following converter pieces:



Sideshift



Loadstabiliser



Draaivorkenklem



Clampforks



Bale Clamp



Barrel Clamp



Rock Clamp



Tilting Device



Rotating Clamp



Draagdoorn/tapijtdoorn



Scoop



Crane

Side shift

As an additional tool can be a side-mounted shift. This serves to the forks Board from left to right and vice versa to be displaced. This prevents unnecessary maneuvering to pick and put away omlasten. You can also through the side-shift the Centre of gravity of the last move sideways. Just make sure always that after using the side-shift this again centered in the middle is restored.



Loadingrack

If there should be dropped and these pallets high is composed of eg. loose boxes, then the lifting or reach truck equipped with a so-called loadingrack.

This rack has the function to protect the driver against trailing load. If there is it is loadingrack with stable large loads worked often absent; This is therefore not required in this situation.

Vorkenbord

The forks Board is the part where the fork teeth to be confirmed. In the forks Board are made to be able the forks lock recesses. Please note that on both sides of the Board is present so that the forks forks an assurance there not from can glide .

Forks

The fork teeth also known as forks or spoons have called the function can be placed under the load and to act as a burden bearer. Therefore not to push, other trucks to pull something los, or worse, to use it as koevoet or crowbar. Within the productaansprakelijkswet are high demands on the quality of the forks:

- There must be no holes in the forks drilled or be burned;
- the ends of the forks should parallel: a maximum difference to 13 mm is allowed;
- There should be no cracks are present (her);
- excessive wear on the heel is not allowed. (max. 10% may be of the vertical section).



Extension Forks

For moving light burden longer than 1 meter can be placed over the forks extensions. To not have the extension pieces having places there are trucks with telescopic forks. These are also called reach forks or pantograph called forks. Hereby strictly, one should take into account the changing last Centre of gravity distance.

When one regularly uses extension forks is to recommend a custom diagram on the forklift.



Chapter 7. Diagram load and centre of gravity

Inleiding

A forklift is, of course, frequently used to transport loads of different places and at different heights. This requires some expertise not entirely unimportant. After all it not apply them can have a big impact such as:

- the topple the forklift;
- falls of the cargo;
- Steering behaviour while driving.

Lastdiagram

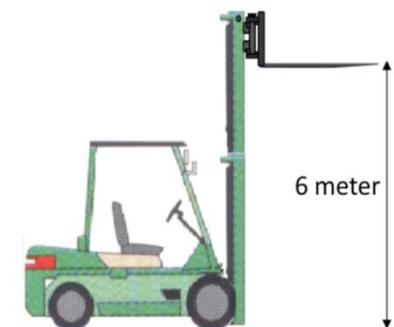
On a forklift should be how many kilograms will clearly present a forklift to what extent can this take place and lifts. The lift capacity that the forklift has says something about the cargo and the force that the forklift to lift. Everything is then again depending on the zg. last Centre of gravity distance. The weight of the load is therefore essential for the safe transportation of loads. Therefore such a burden the user how many kilos overall diagram told the forklift lifting may and places. On the last chart the following data:

- name of the manufacturer;
- serial number;
- year of construction;
- Lift capacity;
- own weight;
- at least a lastzwaartepunt the workload;
- maximum lift height.

Below we will treat these heights.

Construction Height

The construction height of a forklift is the distance from the floor to the highest point of the lift truck, measured with the forks on the floor. A beacon or a safety hood mounted LPG tank can affect Exchange the height.

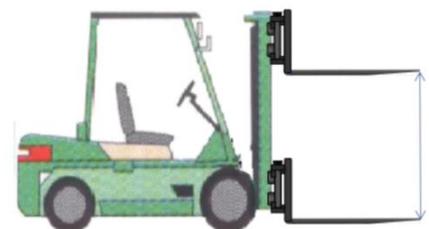


Lifting Height

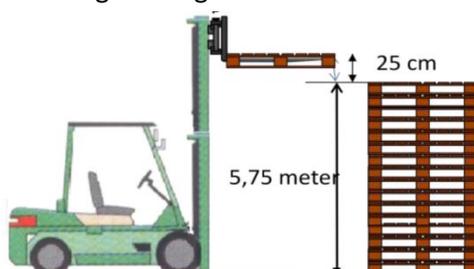
The lift height is the distance from the floor to top of the forks, measured with the lift frame maximum extended and in vertical position.

Free Lift

A special implementation of the forklift with a 2- or 3-way lift frame is the truck with free lifting height. We mean that while the forks go up, not



the lift frame extensions directly. This makes this very well usable in low warehouses or low passages. Free lift height is the distance from the floor to the top of the forks, at the moment the lift frame is still just don't go sliding.



Dropping height

The dropping height is the lifting height (minus. 25 cm). As with a forklift must be fetched from a pallet above the stack/rack/bar, this still something can be levied. If a pallet must be put at the top of the stack/rack/bar, then one can drive the pallet in and drop. Therefore, the maximum height that can be always lower than sales reached the maximum lifting height.

Lifting height - 25 cm = Dropping height



Driving Height

The Driving Height is the distance from the floor to the highest point of the lift truck with the forks ca. 15 cm, measured from the floor. We speak here of Driving the forklift drives so, the last Height: must be separate from the floor.

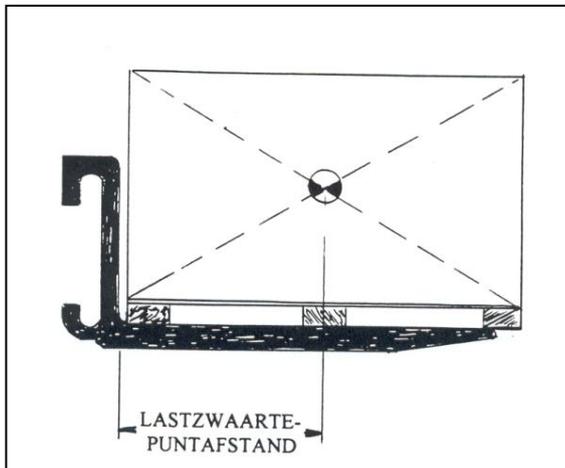
Safety in lifting

Lift Capacity

Each forklift has a specific lift capacity. This lift capacity appears in a number of kilograms. Now only says this is not so very much lifting force. Lift capacity at this centre of gravity distance also hear a burden.

Centre of gravity of a cargo

The Centre of gravity of a cargo is the point, indicated by the symbol \oplus , around the mass of a load is evenly distributed. For example, when a load is evenly loaded, a pallet, the Centre of gravity is exactly in the Middle.



Last Centre Of Gravity Distance

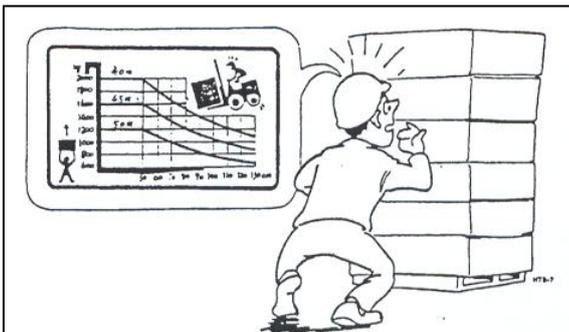
Under the last Centre of gravity distance is the distance from the heel of the forks to the Centre of gravity of the payload. (generally is that in the middle). The lift capacity is then declared at a certain load Centre of gravity distance.

Note: The last example, a pallet of gravity distance of 100 to 120 cm depending on the side where the pallet is included. This pallet picked up in ' the width ' (so to the 120 cm side), then the last Centre of gravity distance is 50 cm. length ' in ' the same pallet picked up (so to the 100 cm side), then the last Centre of gravity distance 60 cm.

Standard last Centre Of Gravity

Centre of gravity where the maximum lift capacity StandaardlastzwaartepuntHet last distance is given, the default is last gravity-point distance. At the last diagram on p. 44-45 this is e.g. 50 cm.

- under the lift capacity means the weight, that with a truck may be levied.
- always belongs to the indication of the lift capacity of the indication of the last Centre of gravity distance, for which the lift capacity.

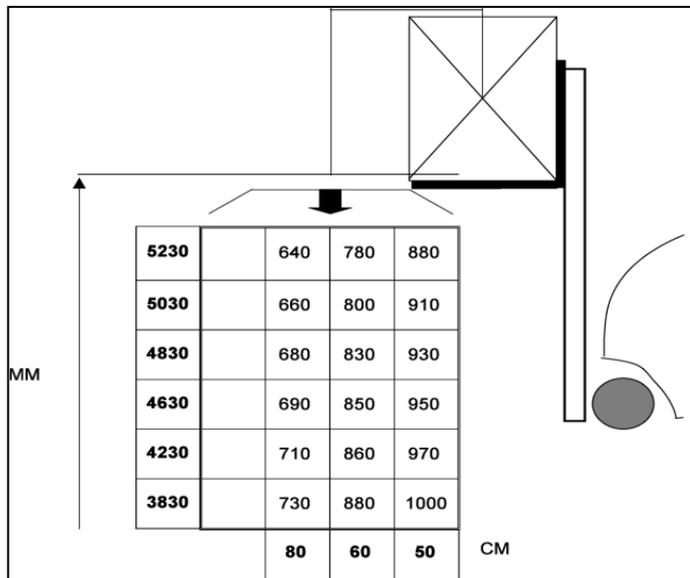


Affect the stability

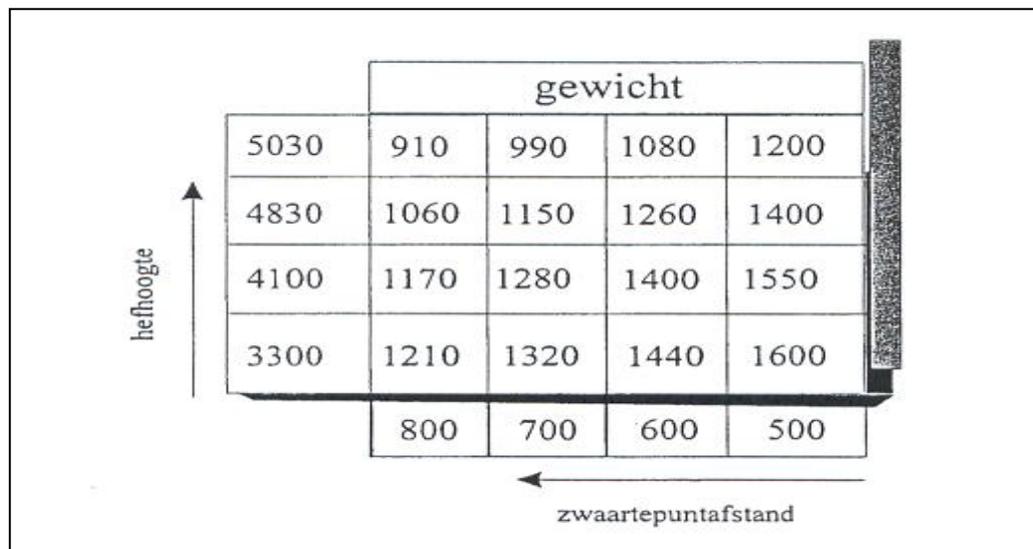
It will be clear that the larger the load Centre of gravity distance is at a given load, the less stable the forklift will be. The weight of the pallet or load is increasingly affect the truck. It is the same when you for example, a weight of 10 kg or against your breast keeps on arms length. It is therefore wise to always with the load as far as possible against the heel of the forks to drive.

Loading Diagrams

The forklift driver must know what the load weighs approximately. This can be read on the packaging or via the Bill of lading. Through knowledge of the pallet sizes he may derive some from the last diagram. The last chart should be well visible to the driver. This is a legal requirement.



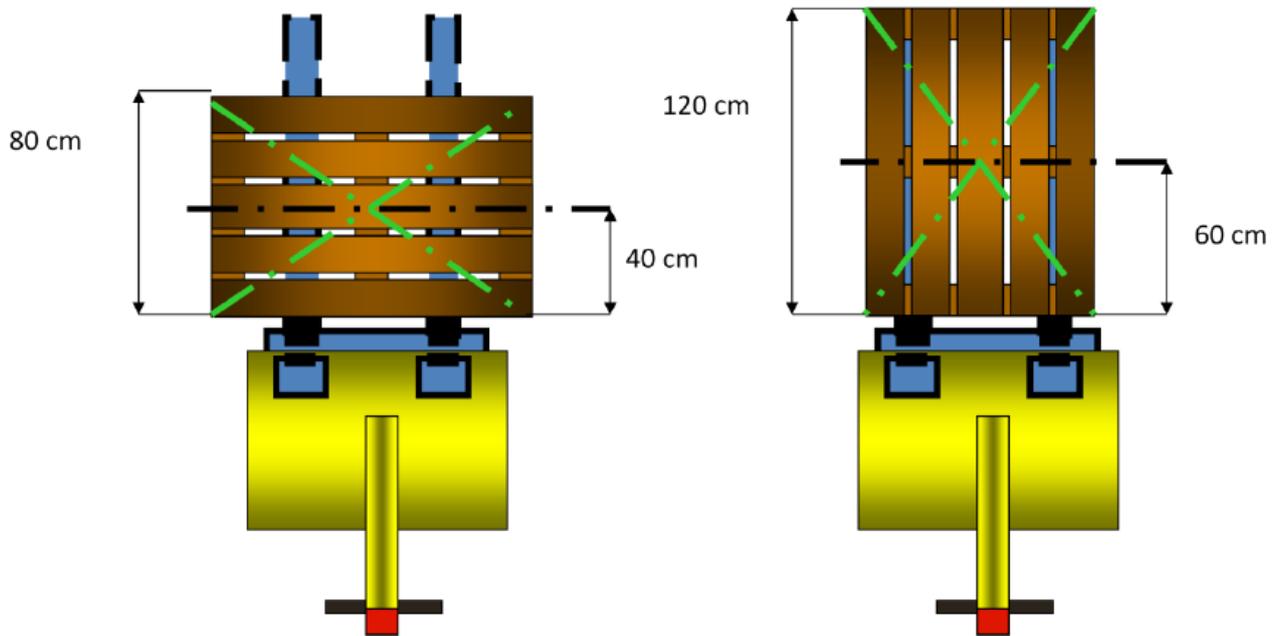
On this last diagram is displayed in the left column the height. The last Centre of gravity distance is displayed at the bottom. The maximum lifting weight stands in the center of the chart. To lift the weight is in this diagram, depending on the altitude: the higher the charge should be levied, the less this mag roads. The diagram shows that at a distance of 50 cm max load gravity point to 1000 kg, but max outstanding 3.83 meters high may be levied. 880 kg to 5.23 metres high.



Afbeelding 1

This last diagram (Figure 2) also takes the height. On the diagram is off to read that at a distance of 50 cm max load Centre of gravity. 1600 kg to 3.3 meters high may be levied to 5.03 meters high is the maximum lifting weight 1200 kg. It is also off to read that at a distance of 60 cm gravity load up to 1400 kg to 4.10 metres high may be levied.

However this is no marketing height 5.03 but 25 cm lower. This because in the last diagram talks about lifting height.



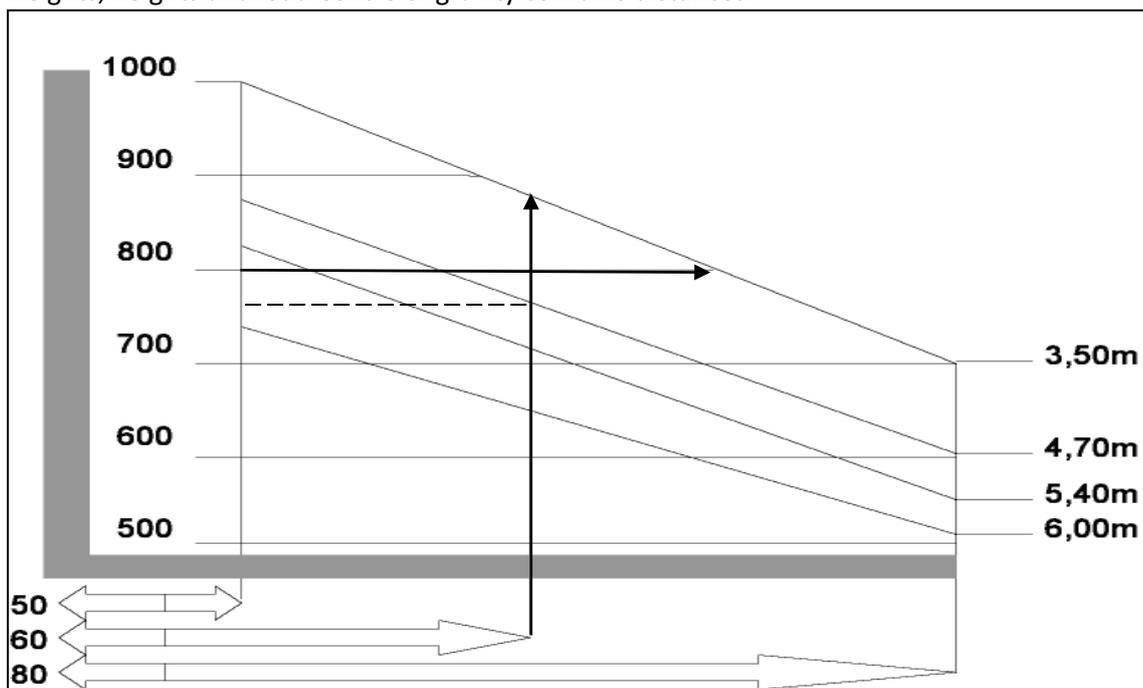
How to read a diagram?

As you can see, there are three principles namely: last indication, maximum lift capacity gravity (weight) and height.

Example 1

You need a pallet with a weight of 800 kg in the stack/rack/bar places. The last Centre of gravity is 60 cm. how high should be dropped this pallet?

1. you draws a line vertically from 60 cm;
2. you draws a line horizontally from 800 kg;
3. these lines cross each other;
4. By this intersection you pull a diagonal line parallel to the outer height lines (3.50 and 4,70 m);
5. you will then see that the height 3.50 m. (4,70 m on one should up to 775 kg places) So we can get various weights, heights and load Centre of gravity combine distances.



Afbeelding 4

Example 2 (Afbeelding 5)

Question? The last is 60 cm the weight Centre of gravity is 830 kg. What is the height?

To calculate this always have 3 data needed? Gravity, height and weight.

1. we draw a vertical line from 60 cm to 830 kg:
2. we draw a horizontal line from 830 kg to the height and then we come out on 4.83 m.

Example 3

We follow the first line 50 cm from top to bottom. Thus we see, that a burden with a mass of 1000 kg to a height of outstanding 3.83 m may be levied (see Figure 6). If the last Centre of gravity distance 60 cm, but 880 kg to a height of outstanding 3.83 meters be levied (see Figure 7).

Afbeelding 5

Hoogte	Gewicht		
5.23 m	640 kg	780 kg	880 kg
5.03 m	660 kg	800 kg	910 kg
4.83 m	680 kg	830 kg	930 kg
4.63 m	690 kg	850 kg	950 kg
4.23 m	710 kg	860 kg	970 kg
3.83 m	730 kg	880 kg	1000 kg
Lastzwaartepunt	80 cm	60 cm	50 cm

Afbeelding 6

Hoogte	Gewicht		
5.23 m	640 kg	780 kg	880 kg
5.03 m	660 kg	800 kg	910 kg
4.83 m	680 kg	830 kg	930 kg
4.63 m	690 kg	850 kg	950 kg
4.23 m	710 kg	860 kg	970 kg
3.83 m	730 kg	880 kg	1000 kg
Lastzwaartepunt	80 cm	60 cm	50 cm

Afbeelding 7

5.23 m	640 kg	780 kg	880 kg
5.03 m	660 kg	800 kg	910 kg
4.83 m	680 kg	830 kg	930 kg
4.63 m	690 kg	850 kg	950 kg
4.23 m	710 kg	860 kg	970 kg
3.83 m	730 kg	880 kg	1000 kg
Lastzwaartepunt	80 cm	60 cm	50 cm

Chapter 8. Pallets, boxes and barrels storage

Inleiding

Goods being transported and moved. There are several possibilities that make it easier for this move. However there are circumstances which should be taken into account with the environment. So can with in the food industry not just wooden pallets user concerning hygiene requirements.

Pallets

The choice of a pallet, it goes to the correct type and the user the most efficient dimensions. There is therefore a large number of different constructions. It may not prevent a load greater than the pallet. This allows easy damages arise there. Therefore the responsibility lies partly in the forklift driver who must ensure.

One-off pallets

One-off disposable pallets or pallets are used mainly in cases where it is not possible to get back the pallet, as with export and transport by sea. Get it back brings more costs, than the loss of that pallet. One-off pallets are usually bad stackable, both objectives as to each other. The pallets are exactly strong enough to be able to contribute to the burden and with the delivery to the recipient.

Consisted of multiple packagings pallets

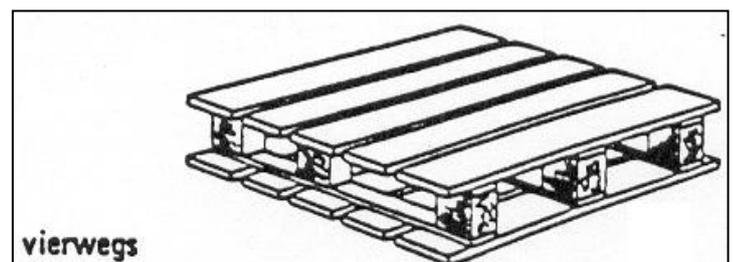
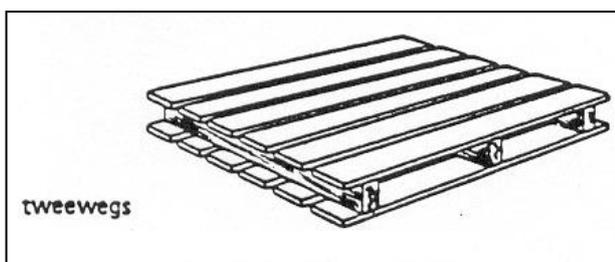
Consisted of multiple packagings pallets are designed so that they can be used more than once. They are therefore sturdier of construction.

Displaypallets

These pallets are not only used for transport but also to the goods to stables in the shops. The advantage of this is that the goods do not need to be repacked. These pallets have a size of 60 x 100 cm.

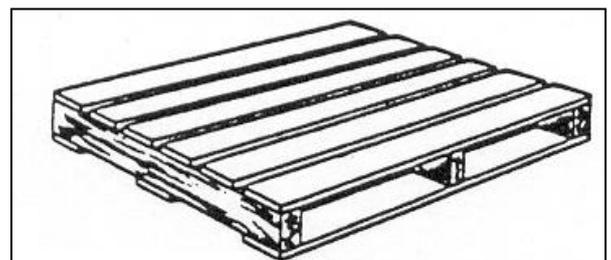
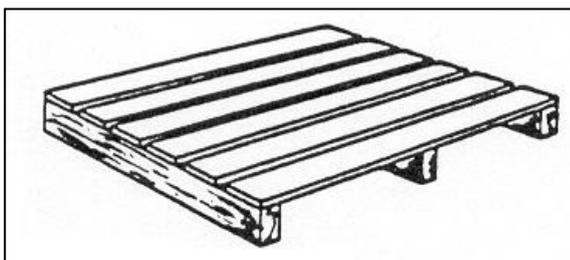
Twee- en vierwegpallet

Two-way pallet means that the pallet can be picked up on two sides. A four-way pallet means that the pallet of squares can be picked up.



Single deck and double deck

A single deck pallet can only be used on one side to accumulate goods. A double deck pallet can be used on two sides.



Treatment of pallets

How strong are the pallets, against bad treatment consisted of multiple packagings also created even the strongest pallet is not equal.

Therefore we want to indicate in a number of key points, what are the main rules.

- Make sure that the forks, 2/3 of the minimum pallet support;
- Please always evenly on pallets;
- Avoid bumps and collide with the burden;
- Never with one fork tooth a laden pallet transfer;
- Treat an empty pallet as a full. Go there to quietly and let this never fall of the stack.
- The connections let loose and shelves can divide asunder.

Dimensions and materials

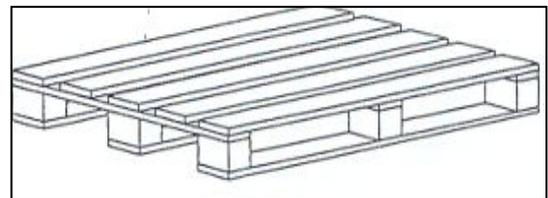
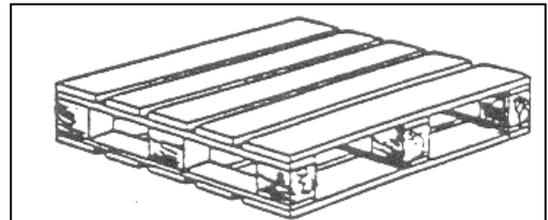
The main pallet dimensions are

-Block pallet: 100 x 120 cm.

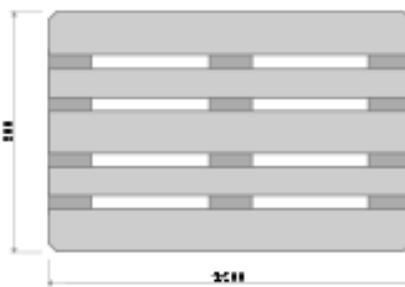
- Europallet: 80 x 120 cm.

(recognisable by the EUR brand)

The Block pallet is also referred to as 'Standard' ISO-pallet or Pallet.



PALETTE EUR-EPAL ©



Materials

Most pallets are made of wood. Wooden pallets have a number of advantages over other materials. They generally have a long lifetime, are sturdy and easy to repair. Nevertheless, there are various other materials used for pallets can be used, such as:

- paper and paperboard;
- hardboard;
- wood fiber;
- plastics;
- metal.

The reasons to other material to use is often depends on the business situation.

Koud stapelen

Pallets can be stacked in objectives but also outside the warehouse stack/rack/bar

This is called "cold stacking" and can be both right to each other as in connection.

Stack only if:

- the goods on right are stacked;
- the packaging and/or goods the pressure can tolerate. If this cardboard boxes, they must be in a good context are stacked and top level.

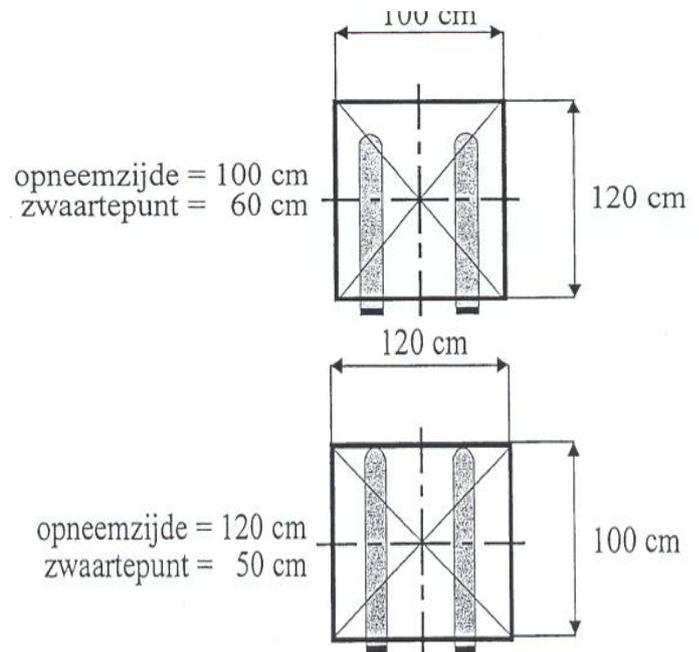
Handling Of Goods

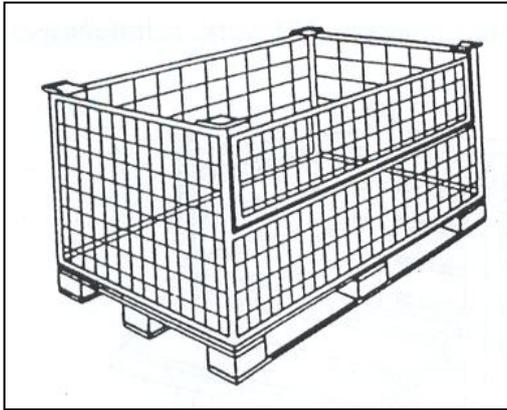
On most packaging instructions are made for the treatment of the collo. Meestalin the language of the country of origin. This is not enough, because only when the parcel is sent to or through other countries, this also means that the instructions in multiple languages must be affixed on the packaging. It gets even harder when it cannot read or write loodspersoneel.

This issue is resolved by the instructions to be replaced by symbols. An icon (drawing) specifies how the parcel must deal with during transport.

The symbols can appear on a label or be affixed directly on the packaging. In some cases, the explanatory text for the symbol below it.

The stacked pallets are not reachable directly on each other separately. This method cannot be used for all sorts of storage. In the system; "the first occasion within, first out" (FiFo) s stack not usable, because it directly on the bottom remain that way for the longest and decay and aging in the hand being worked on. All pallets are stackable, well higher than 4 pallets with last may in General not be stacked.





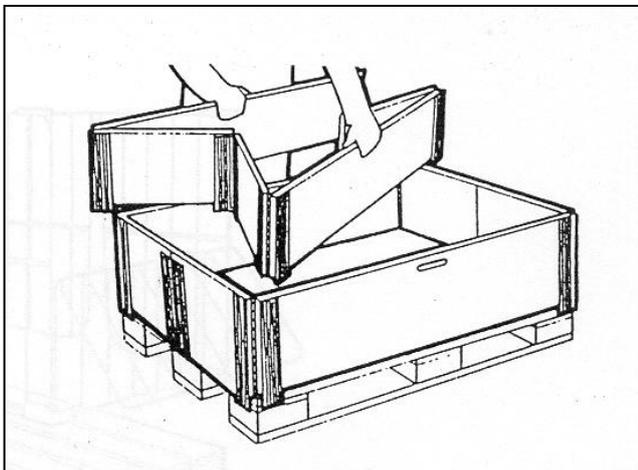
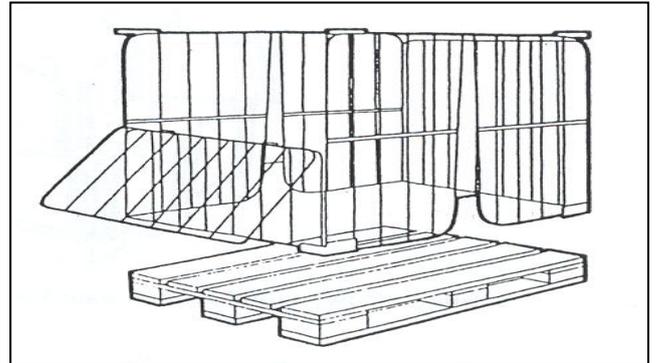
The U-shaped opening makes an optimal accessibility of goods possible.

Boxpallet, with walls of steel wire construction. The folding front also makes when stacking, the goods accessible. It is a strong construction, which one can safely stack.

Building opportunities

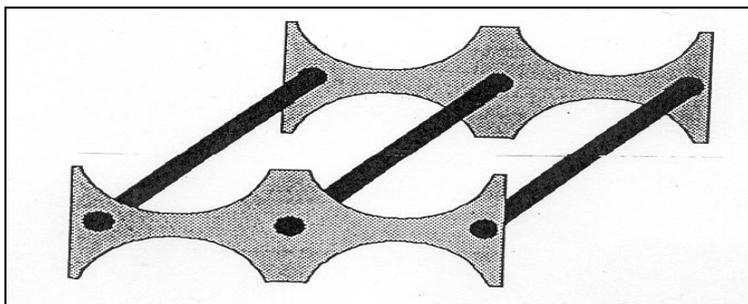
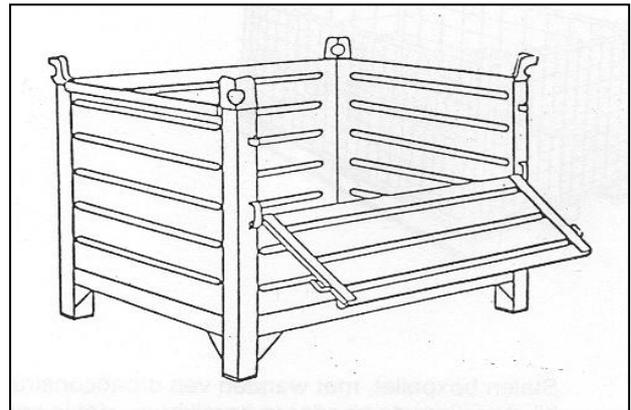
Pallets can be constructed in various ways. The following are the most common forms treated.

Boxpallet excellent for transporting and storing small colli.



Closed metal containerbak with folding front.
Excellent for heavy bulk goods such as metal parts.

An ordinary wooden pallet can be equipped with a metal design wall. Below is the same storage medium than the previous, but obtained at stacking less strong. The metal movable walls are removable and nesting. One can adjust the number of edges as needed. This works-saving.

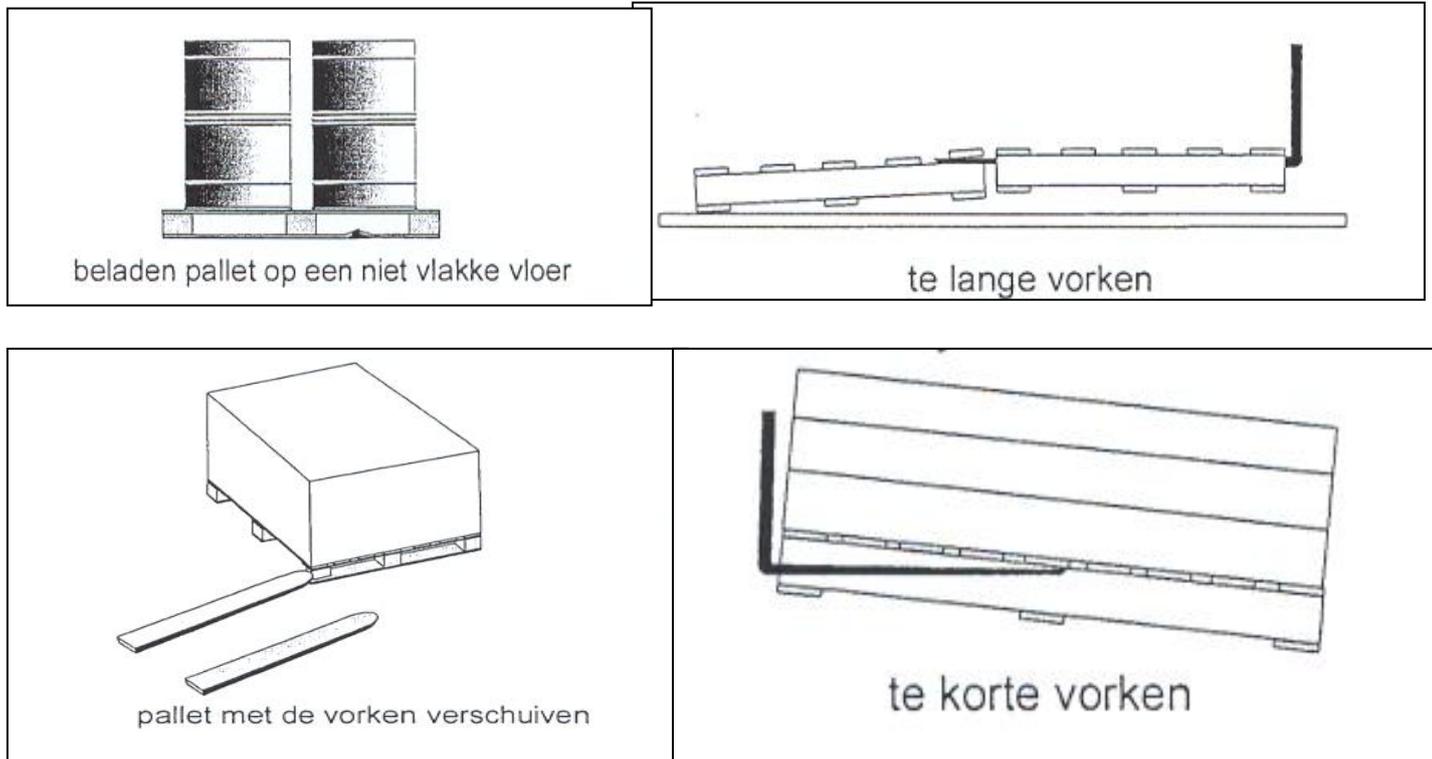


With it is possible to stack the barrels pallet barrels. It is, however, necessary that the barrels fit and of equal dimensions are in brackets.

Damage to pallets and goods

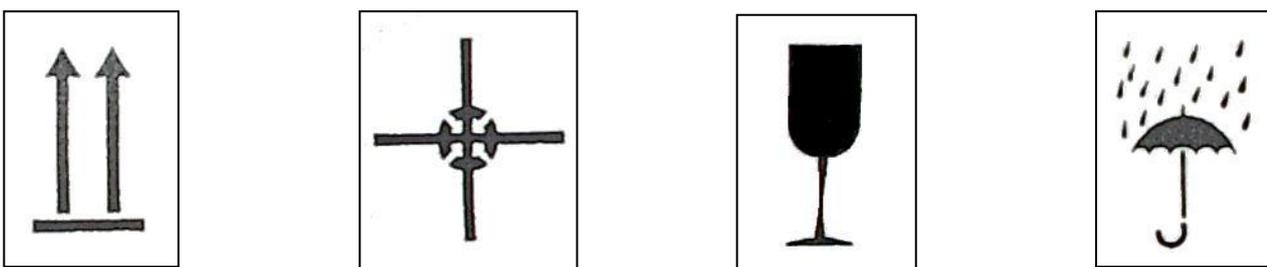
Often if the working pressure is too high, there are many collisions. These collisions go up again accompanied by damage cases. To minimise this it is important that anyone who makes use of a forklift and/or reach truck prepares responsible themselves.

Damage to pallets quickly arise because not careful enough handles this load. Below you will see a number of examples:



PACKAGING

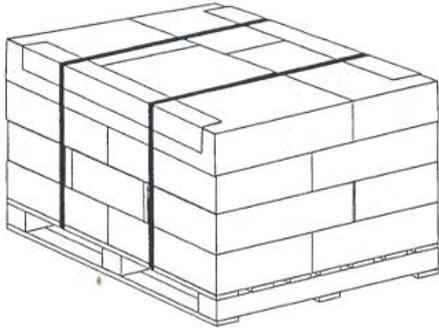
Handling labels give specific information about the treatment of the packaging. The following labels:



1. This side above
2. Gravity designation
3. CAUTION fragile contents
4. Contents may not be wet

Securing packs on a pallet

Goods can be secured on a pallet in a number of ways. We call the most important:



Shrink Film

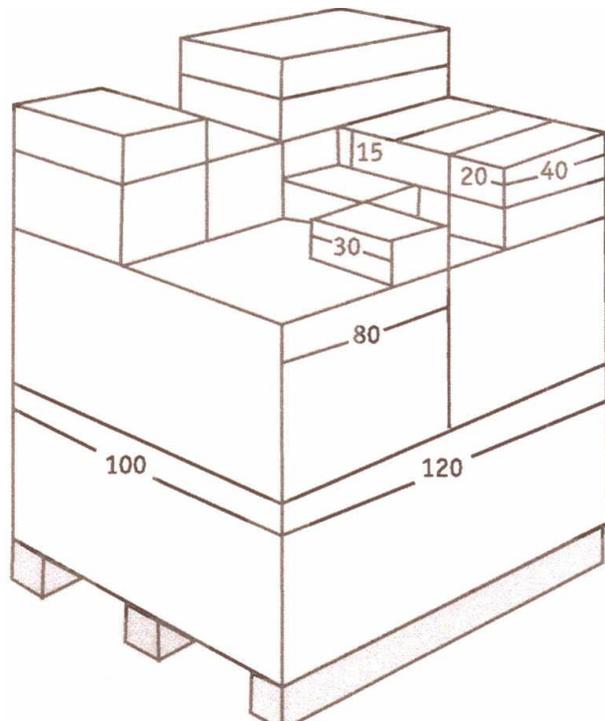
Packaging, usually in context, placed on a pallet. There is then wrapped around it, which by heating plastic foil tightly around the pallet is around 'shrunken'.

Stretch folie

Displays the foil tightly wrapped around it immediately. There arises a hearty whole because the foil acts as a sort of elastic. This enables the foil strakgetrokken, without the foil breaks.

Rope

The rope is strained, the packaging so that a solid charge arises.



Loading a Pallet

Ideally you the goods on the pallet stack such that the loaded pallet, one whole.

Collomodulair system

The packaging industry has for the packaging of goods developed a "collomodulair system". Here is one based on the pallet sizes. For example, this means that you have a certain measures on a pallet boxes with such places can that the whole of the pallet load surface is used.

Chapter 10. The electric motor

Inleiding

A forklift will generally move only within the company. Therefore he asks anyway to maintenance. Often as a forklift is like new purchased find it pleasant to interact with. It is an important maintenance item to work on. Bitches is a hugely important safety aspect. This for both driver/user and for third parties. In this Chapter come a number of terms specifically intended for servicing bid.

Electrotraction

Advantage

The main advantage of this type of drive is the fact that there is no harmful exhaust gases. Electro traction is therefore particularly suitable for use in enclosed spaces. In addition, the battery is very heavy, and can thus be used as counterweight.

Disadvantage

The disadvantage of electro traction is that the battery needs to be charged for a longer period of time. In addition, the purchase price is significantly higher than a forklift with combustion engine.

Electric Power

Plus- en minpool

Electric power is the best compare with water. There is, for example, at a particular place (high water), then lots of water that flows in one direction will undoubtedly go where little water is (low water). Not only is electricity to water particles that move but to "electrons". Electricity flows to a place with few electrons. Condition is that there is a closed circuit. Once we connect the positive pole with the negative pole put the electric particles in motion.

DC and AC voltage

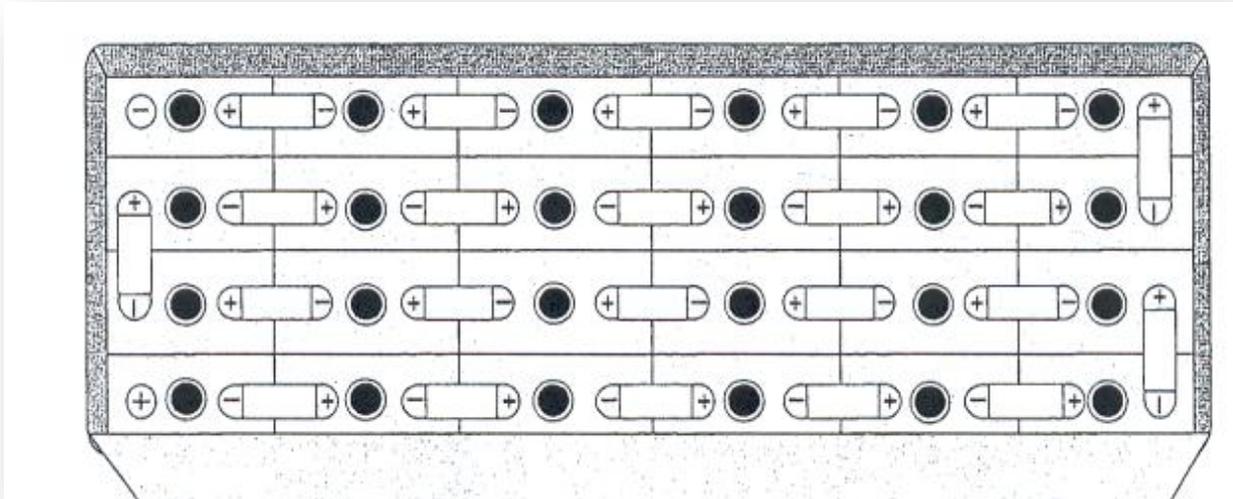
A well charged battery provides DC voltage, in other words: the flow constantly goes in the same direction. The electricity that at home or the company is supplied by the utility company constantly switches of direction, about fifty times per second. Exchange can also be converted into direct current voltage. This is the task of the rectifier, i.e. the battery charging device. This is treated in a following paragraph.

In a circuit can be included all sorts of power consumers, such as the rijmotor, the lighting, electric heating, various gauges etc.



Spanning = Volt

Between the plus and the negative pole of a battery is a voltage difference. If we bring them into contact with each other is a stream flow. That can continue to flow that flow long, comes by the chemist functioning in the battery. Voltage is measured in volts (V).



Stroomsterkte = Ampère

If we want to give power to how strong is, so how many electrons there per unit flow by the flow thread, then we print that out in Amps. The amperage you can measure with an ammeter. The capacity of a battery appears in a number of Amps per hour (Amp/h).

Series Circuit

A battery cell has a voltage of ± 2 volts. Since many forklifts working on 48 Volts or more, this voltage can be obtained by the cells on a certain way to connect with each other. Each cell has a + pool and a pool.

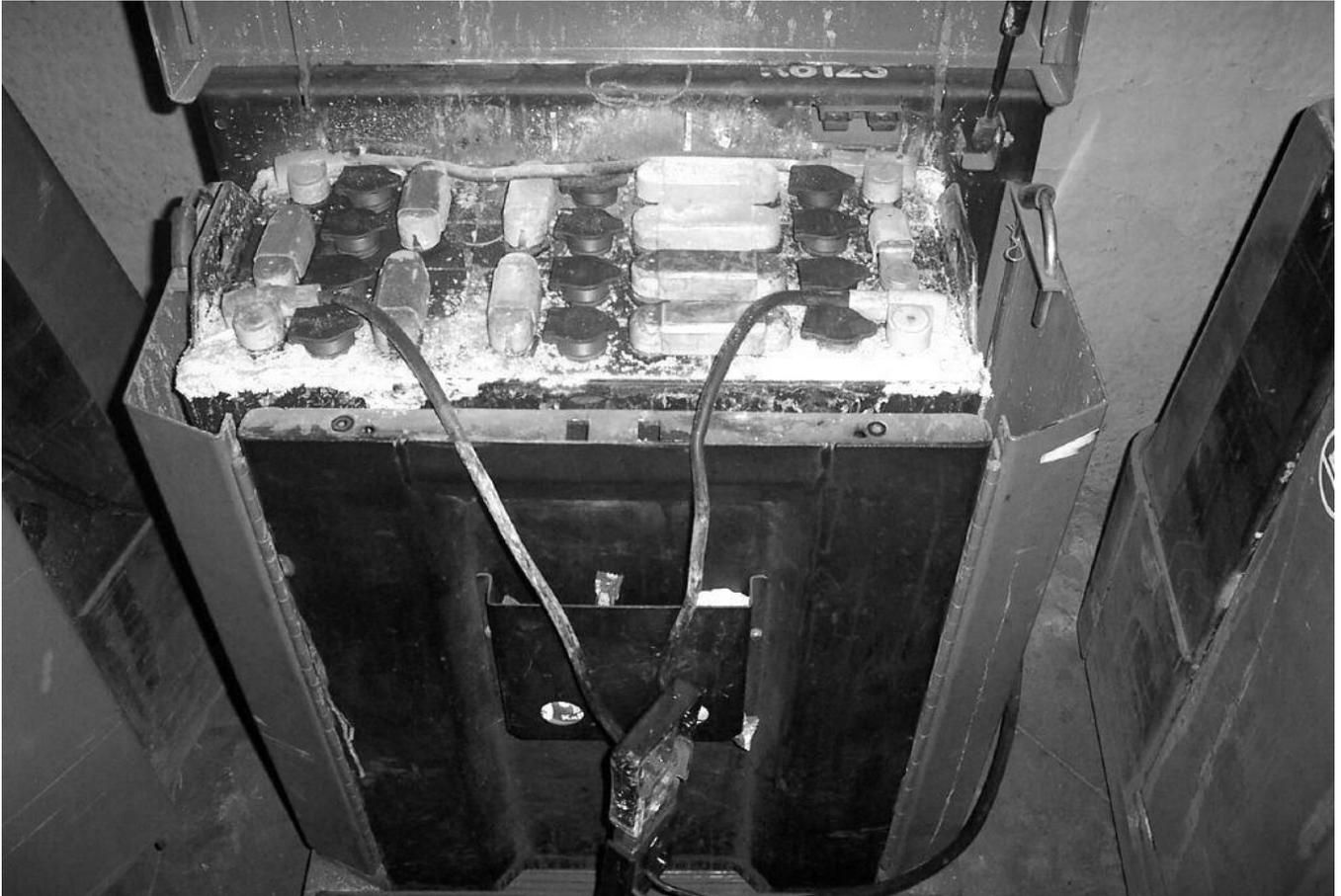
By the + next to each pool to the-pole of the cell located at the voltage builds to connect one. This is called a series circuit. In this example, 24 2×2 Volt cells together constitute = 48 volts. If a forklift operates at a voltage of 48 volts, so there are 24 cells connected in this way.

The Rectifier

The rectifier converts alternating current to direct current from the mains of the company. Additionally, the voltage of 220 Volt converted into a Voltage of the battery, for example, 48 Volt.

The traction battery

The battery (or: cell) consists of a plastic container with lead plates. The battery consists of a number of individual cells. In each cell are positive plates and a same number of negative plates. The two types of plates are separated by an insulation Board.



Elektrolyt

The battery is filled with a mixture of sulfuric acid and demineralized or distilled water. This mixture is called electrolyte. By the chemical action of the electrolyte and the aforementioned plates it is possible each cell of the battery an electric voltage of ± 2 volts.

Operation electric motors

The electricity in the battery is used to drive the forklift. This happens via electric motors. This work on the basis of the magnet principle: bumping each other, different Poland Poland Similar attract each other.

These are equipped with magnetic coils, which are by sending electricity through wire-thrills. Because the coils in the metal House and attract and repel each other the anchor, the anchor rotate. For example, this circular motion is then used to propel the wheels and the pump motor.

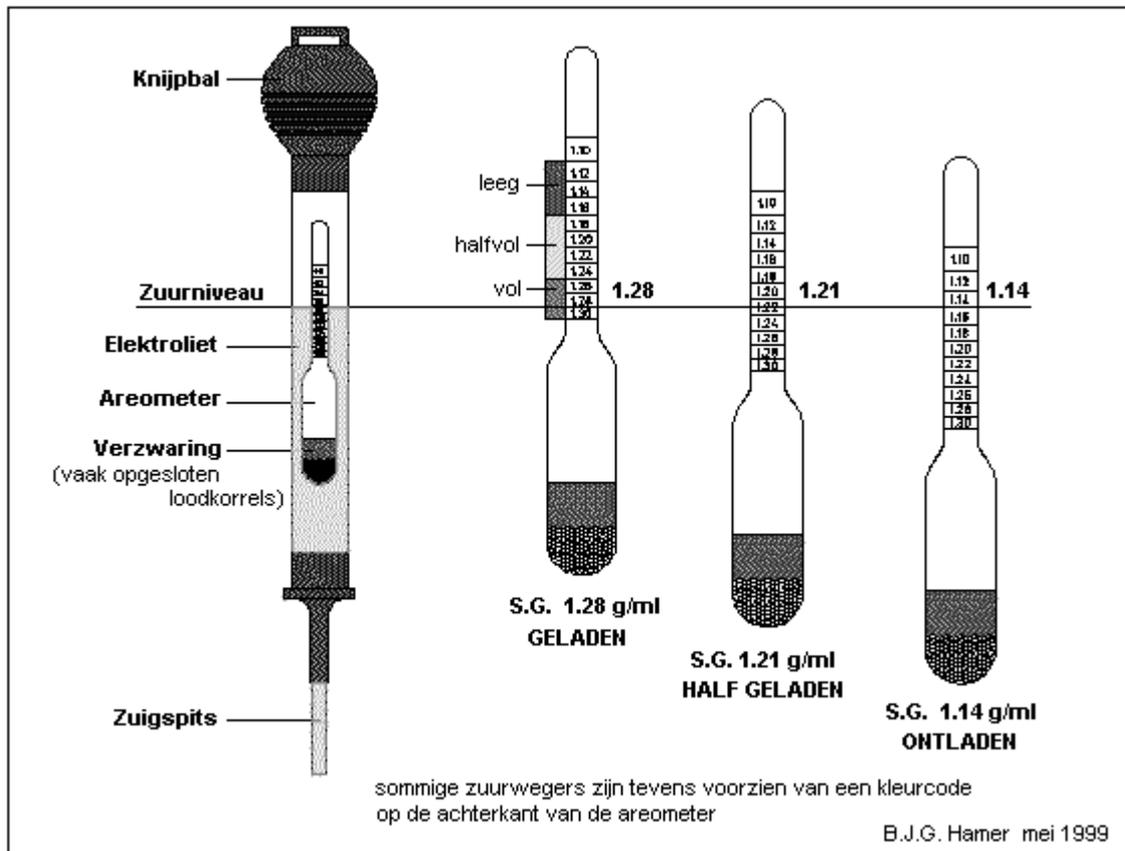
Use a hydrometer

A quantity of acid is sucked from the cell in a glass tube, until the floats Tracker. The specific gravity is then read off at the point where the scale just above the acid sticking out. After use it is important that this acid comes back in the cell from which it is taken, since otherwise the specific gravity and the level of the acid be affected. Avoid splashing on clothing etc. at the empty printing of the hy

Specific gravity

When using the sulfuric acid in the electrolyte will of the plates pull making it specific gravity of the electrolyte takes off.

With a full battery will be a value between 1.26/1260 and 1.30/1300 off to read on the hydrometer, depending on the brand and type. With an empty battery will this value between the 1.13/1130/1150 and 1,15..

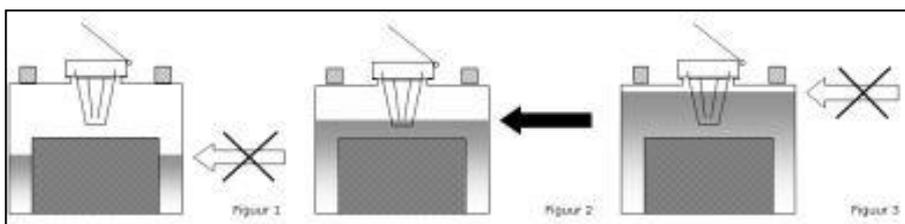


Refill

The fluid mirror of the electrolyte should be about 1 cm above the plates. This is less, then it should be topped with demineralized or distilled water.

Water goes through two lost causes:

1. Evaporation: because the battery gets hot;
2. Electrolysis: this is the chemical process of charge and discharge of the battery where the water 'parses'.



Distilled or demineralized water is used to avoid with the water impurities in the cells, which have a devastating impact on the active materials might have. The frequency of refilling will depend on factors such as temperature, humidity and age of the battery, but average is 1 x a week sufficient. Excessive use of distilled water is often an indication that the battery is overcharging by a long gassingsperiode.

Always after the charge a battery filling up to level indicated. Never take tap water for refilling

The sulfuric acid is very corrosive. So only during refilling for splashes. When too much water is replenished by the steam will heat the battery mentioned. The moisture can oxidation (white attack) to the battery cause Poland.

Too little water refilling causes the plates ' Boil '.

Knalgas

Still a serious warning: while loading the battery develops, a very explosive oxyhydrogen gas. The water (H₂O) is separated into hydrogen (H₂) and oxygen (O₂). To prevent accumulation of these gases, one needs to open the battery cover.

Check the fluid level in the battery so never with a lucifer or lighter!

There is a large chance that the battery burst with disastrous consequences. Oxyhydrogen bubbling up and collected is above in the cell. If we open fire or sparks in the vicinity, the battery can explode.

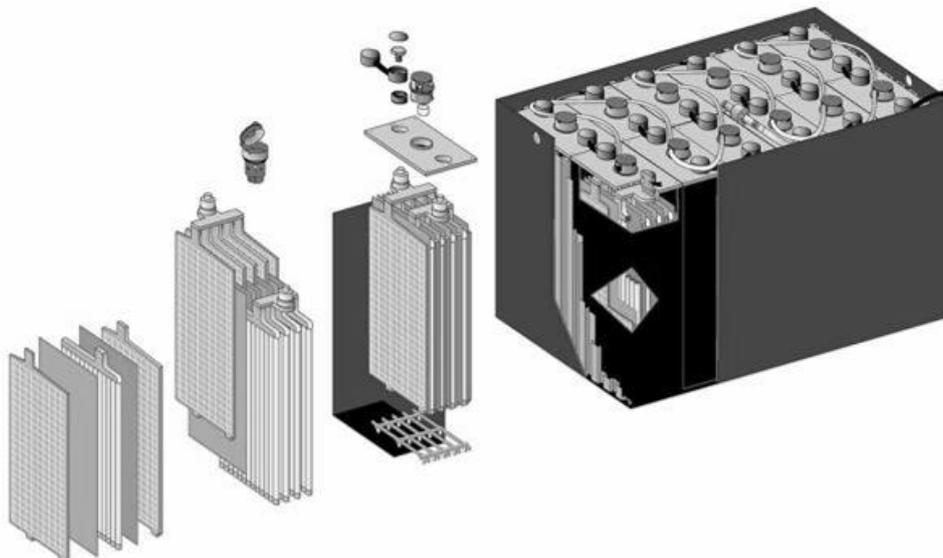
The battery loadingstation

Connect and disconnect

When the battery is empty, it must be recharged. It should be held below order:

1. lift truck parking, Handbrake on it, contact key look like;
2. open the battery lid. Possibly topping (see directives manufacturer);
3. connect plugs;
4. turn on Rectifier.

When disconnecting the work find place in reverse order. Or the batteries before or after the cargo must be replenished, depends on the manufacturer.



Liquidation Cargo

During the first hour of charge is most power recharged, up to 75%. The battery State about 6-8 hours under load. The rest of the time is used to approximately 20-23% at load. During the daily cargo comes the battery so not quite vol. therefore there occasionally, for example in the weekend, a liquidation cargo take place. There is then a long period consecutively recharged. The battery is then to 100% loaded. This is the battery life for the better.

An application load is for an automated rectifier no longer necessary: the battery is always charged up to 100%. Most rectifiers today are automatically.

Exchange Batteries

Because loading a battery lasts quite long, are used by some companies Exchange batteries. This means that when the battery is nearly empty, the battery is only exchanged. So there are some two per forklift batteries.

This system has the advantage that there is almost continuous, 24 hours per day, service can be rotated with the forklift truck. The system also has the advantage that the battery is charged only when it is almost empty. Also this is the lifetime benefit, because a battery goes a limited number of loads. Also when the battery is still half full and the charger is set, this is a load less of the total life.

Battery discharge meter

Too deep discharged is bad because this may cause the lead (very brittle) los late, to the bottom against the plates drops and at the bottom, leaving a zg comes. "**dead cell**" arises. -Discharge the battery meter gives information on the amount of ' flow ' remaining in the battery is stored. The meter warns the driver that the battery needs to be recharged.

Together with the battery discharge meter is often a circuit built-in. This circuit ensures that the pump motor cannot be used if the battery is discharged too far. There can therefore still be ridden, but no longer levied.

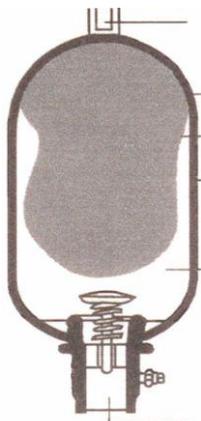
Laadrapport

The found values of the hydrometer before and after the load and any liquidation must be recorded in a battery loading report. This happens each cell separately. Each cell has gotten a number. This is called the "**sensor cel**".

The purpose of the loading report is over a certain period to be able to see or for example a particular cell is going backwards. There can then be decided to replace that particular cell.

Accumulator

The accumulator is a steel bottle in which a rubber bag is mounted. The rubber bag is filled with nitrogen. The opening of the bottle is with a guide or slang, for the safety valve, connected to the bottom of the lift cylinder. The pressure acting through the hose, the increase can now, with nitrogen filled rubber bag compress. This is the increased pressure by compressed nitrogen.



For this energy, this energy is drukverhoging nitrogen is provided by the pressure increase hydraulic oil. If the energy of the hydraulic squeezes moved back to the cylinder. This way the shock muted. The rubber bag is thus used as a reservoir for the nitrogen, so that the nitrogen not in touch can come up with the hot hydraulic oil.

HER Opleidingen - Transport en Logistiek Opleidingscentrum

Laadrapport ten behoeve van het onderhoud van de tractiebatterij.

LAADRAPPORT Batterij nr:..... Type:..... Eigen nr:.....
 Maand:.....20

Normale Lading Controle Cel Nr								LAADSTROOM 1 x per maand invullen							
DAG	Voor	Na	Opmerking	DAG	Voor	Na	Opmerking								
1				17				Bij geladen batterij:							
2				18				Genoteerd d.d.							
3				19				Einde Laadstroom:							
4				20				Bij ontladen batterij							
5				21				Genoteerd d.d.							
6				22				Begin Laadstroom:							
7				23				Vereffening laadstroom							
8				24				Genoteerd d.d.							
9				25				Aanvang							
10				26				Einde							
11				27											
12				28				Duur van de vereffeninglading:							
13				29				D.D. : uur							
14				30				D.D. : uur							
15				31				D.D. : uur							
16								D.D. : uur							
TOTALE CONTROLE (of Vereffeninglading)															
Genoteerd d.d.				Genoteerd d.d.				Genoteerd d.d.				Genoteerd d.d.			
Cel	S.G.	Cel	S.G.	Cel	S.G.	Cel	S.G.	Cel	S.G.	Cel	S.G.	Cel	S.G.	Cel	S.G.
1		21		1		21		1		21		1		21	
2		22		2		22		2		22		2		22	
3		23		3		23		3		23		3		23	
4		24		4		24		4		24		4		24	
5		25		5		25		5		25		5		25	
6		26		6		26		6		26		6		26	
7		27		7		27		7		27		7		27	
8		28		8		28		8		28		8		28	
9		29		9		29		9		29		9		29	
10		30		10		30		10		30		10		30	
11		31		11		31		11		31		11		31	
12		32		12		32		12		32		12		32	
13		33		13		33		13		33		13		33	
14		34		14		34		14		34		14		34	
15		35		15		35		15		35		15		35	
16		36		16		36		16		36		16		36	
17		37		17		37		17		37		17		37	
18		38		18		38		18		38		18		38	
19		39		19		39		19		39		19		39	
20		40		20		40		20		40		20		40	

Ingevuld door: _____

Datum: _____

Safety rules battery charger

Work on battery

Good precautions for work on a battery are wearing acid goggles to protect the eyes, as well as wearing rubber gloves and a lap, to protect hands and clothes. Also it is necessary to impose a rubber mat on the battery to prevent the chains or plug of the block crust closure makes with the poles.



Clean en keep dry

When the top of the battery wet there can arise between the poles and this gives stroomlek a loss of capacity and corrosion of the poles. If one on the celdeksels water spills, then this will water at the end of the load with the acid mist released mangle. This means that a small amount of spilled water is sufficient for doing emergence of a zuurlaag on the celdeksels. In the long term, this can result in serious damage to pool connections.

An electric traction battery is in good maintenance by most manufacturers guaranteed for 1500 to 1900 loads. Therefore, it is also true that an average battery between 3,000 and 5,000 costs entirely depending on the species forklift truck.

When the battery is half empty and driven to the battery charger is put, this means one term less. The half leegrijden of a traction battery can do to a battery sulfa; This means that a portion of the battery "dies" and is no longer usable

Chapter 11. The combustion engine

Naast de elektrische heftruck, wordt er ook veel gewerkt met verbrandingstrucks. Deze trucks zijn dan ook altijd uitgevoerd met vier wielen en beschikken grotere krachten. Het onderhoud is dan ook weer anders alsmede de werking bij een elektrische heftruck.

Nadelen

The big disadvantage of a combustion engine is that there are harmful exhaust gases. This disadvantage can be solved (partly) by, for example, to apply a catalyst, but this form of drive remains less suitable for use in enclosed spaces. An exception is the LPG-engine. By his relatively clean burning can be used better than the diesel engine this within.

Werking motoren

Each type of internal combustion engine works by combustion of a fuel in a cylinder. This arises either by incineration-a spark from a spark plug-(LPG drive), either by heating by compressing air (diesel). This combustion ensures press a plunger, which by means of a connecting rod is connected to the crankshaft. The crankshaft is turning and drives the front wheels and the hydraulic pump.

The motor has a lubrication system and a cooling system. The lubrication system ensures that the moving parts not or hardly wear out. This lubrication system will be discussed below. The cooling system will then shortly be discussed.

Het smeersysteem

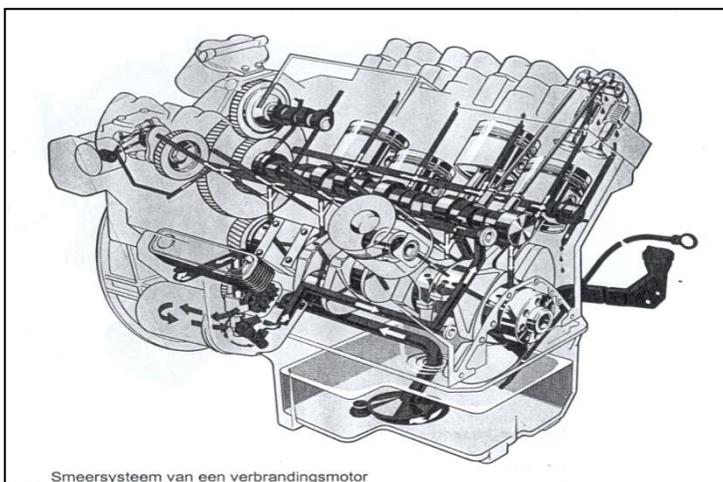
Taken smeerolie

The lubricating oil to an internal combustion engine has five tasks:

1. cooling
2. muting
3. cleaning
4. sealing
5. lubricate

Oilpump

The oil is collected in the sump from which it by an oil pump to all moving parts of the engine is pressed. The oil flows after the task to have fulfilled, without saying back in the carter. The oil pump for pressure lubrication ensures so. The cylinders are however lubricated by splash lubrication. This means that the crankshaft rotates at high speed by a oil bath, making oil against the cylinder wall is aangespat.

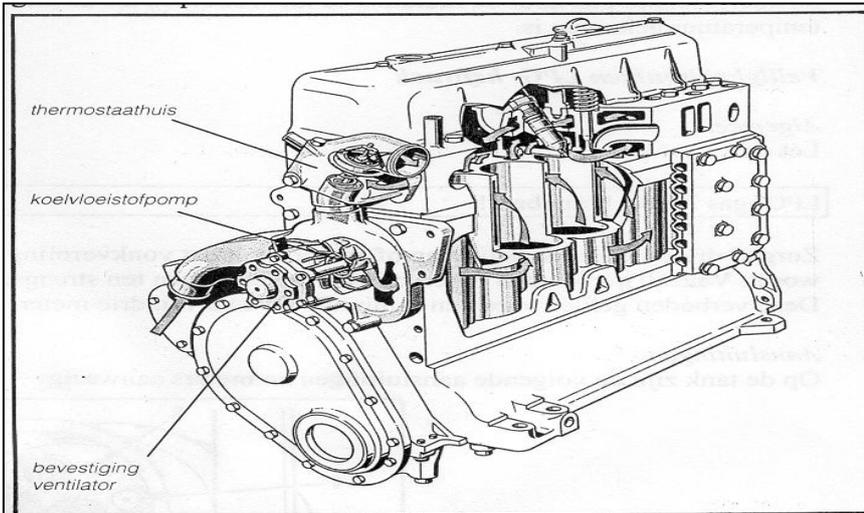


Oil filter

For the oil pump is a filter applied. This filter cleans the oil of sharps and dirt. The filtered oil is through the pump to the various components of the engine pumped. The oil filter should be regularly replaced.

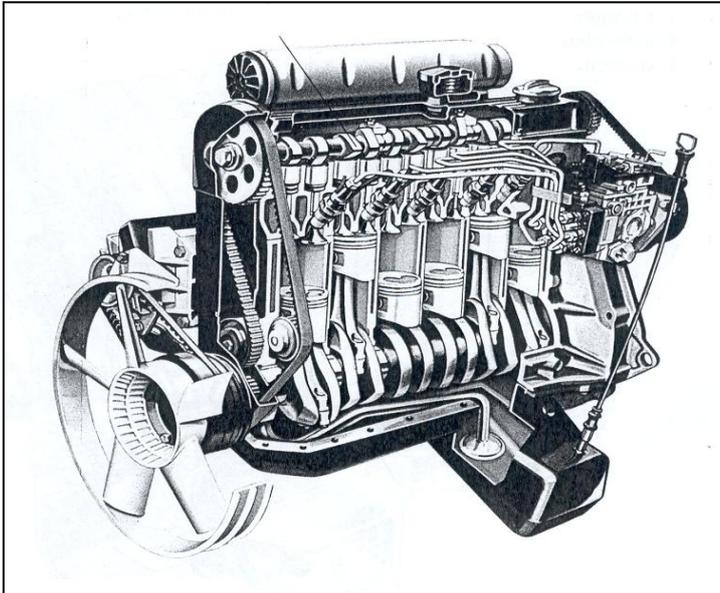
Checking the Oil

With the dipstick which protrudes in the crankcase, the State of the oil can be checked regularly. Is this too low, then there is chance of overheating of the engine. There must then be topped up oil. The level is too high, then there is chance of leakage by too high a pressure.



Heat

From the combustion heat arises. For a proper functioning of the engine is a cooling system necessary. The engine would overheat, then this means that the oil too hot and so is too thin. **This has resulted in the engine crashes!**



Cylinder Walls

During the combustion is a portion of the developed heat transferred to the cylinder walls.

The material from which these walls are made, is not resistant to extremely high temperatures. The cylinders and the cylinder head must therefore also be chilled. In the cylinders and the cylinder head are hollow spaces made making the cooling water flows. This water takes the heat from the cylinder walls must be chilled to the hot water on. again as refrigerant service can do.

Radiator

This cooling happens in a radiator. The water flows in the radiator on the outside by thin pipes that are cooled by air that flows along there. The chilled water is fed to the engine by a pump again. To increase the cooling effect uses a fan. The radiator must be regularly schoongespoten, from outside inwards. Caked dirt reduced namely the cooling ability.

Thermostaat

Since an internal combustion engine functions best at a temperature of about 85 ° c, must be started as this only with chilling temperature in the engine is the thermostat makes above, reached by the coolant to the radiator until the engine let flows as on temperature has come.

Arbo-rules

- filling fuel tanks of forklift trucks with diesel oil may take place only in the outside air on intended and specially equipped places (petrol stations),
- during filling the fuel tank may not be smoked within a radius of 3 meters and there should be no open flame present.
- the cap on the fuel filler must sound of the fuel tank are made. Spilled fuel must first be carefully removed before the engine of the truck may be started.

Since 1 January 2003 it is forbidden for companies with a diesel forklift (up to 4 t) to work within. Labour inspectors therefore sharp here keep even if it concerns supervision but a moment..

Safety Signs LPG- forklift

Note:

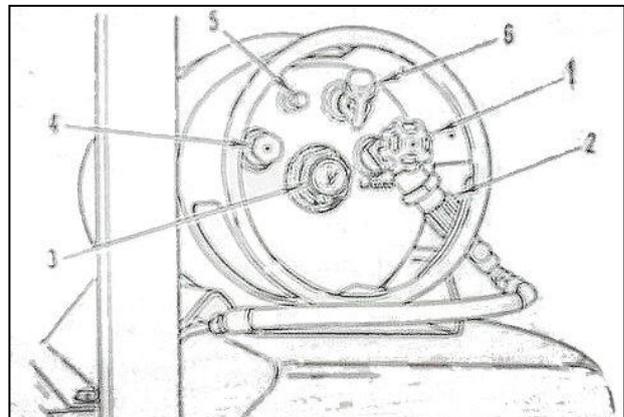
LPG- gas is very flammable!

So make sure at every act or to the tank that spark formation is avoided. Of course smoking is strictly prohibited in these acts! These prohibitions apply to a minimum distance of 3 metres.

Aansluitingen

On the tank are the following connectors and indicators present

1. fuel tap
2. Shortcut
3. Fuel gauge in percent
4. Sealing stop
5. Level crane 80% fill
6. Pressure Relief Valve



On some LPG-tanks sits on the site of the sealing stop (nr. 4) a refuelling connection

Control Operations

At the LPG truck must be given specifically to the control on the LPG-tank on the back of the truck. This must be at all times and secured are well stuck. Also when the truck is parked for extended periods of time should the fuel tap (number 1 in picture above) be closed.

Exchange of a LPG-tank

- take following order in eight at the turn of a LPG-tank:
- Shut down teh engine
- Fuel tap run Motor
- detach: there is still some Cautious pipes pressure in the system!
- Tank loose and subtract
- new tank out
- • tubing connecting
- Fuel tank borgen tap turning

LPG

LPG is the abbreviation of Liguified, a Liquefied Petroleum Gas oliegas. We used in our country also known as autogas propane, name, and the name because this gaseous fuel the biggest ingredient of LPG. But LPG is a mixture of propane and butane, two odourless gases. Can perceive the presence of autogas is an odorant added to.

At the refining process of oil gas comes free, that can be used as fuel. When this gas being put under pressure (4 to 13 bar), the liquid and as such is good to transport. This makes LPG particularly suitable as motor fuel. For use of LPG in the engine, no one in fact nothing else to do than to let the liquid back in gaseous state. By the pressure is LPG to the engine itself. It needs to proceed only in vapor and to be mixed with air to form a flammable mixture,.



The LPG tank is equipped with various taps and:

- control valves;
- non-return valve;
- Filter;
- Electromagnetic Valve;
- High pressure reducing valve;
- Low pressure reducing valve;
- Carburetor.

The operation is as follows. The pressurized liquid LPG, flows from the vessel that is mounted on the truck through a filter and a valve to a pressure-reducing device, which gradually decreases and the pressure of the liquid LPG gas to gas evaporates, while the exhaust gases through the engine cooling water or heat is supplied to the combustion to establish as soon as possible. Because there are quite a lot of heat to the coolant is tapped, will quickly tend to freeze arise.

The use of LPG as motor fuel gives a favourable combustion, because the fuel in gaseous state in the engine is conducted, which benefit an easy mixing with the air.



New tank

Specially for LPG-forklifts Primagaz gas cylinder has a lightweight durable and super strong plastic developed. The gas cylinder by the light weight is a lot easier to change than the steel forklift lifting and tankjes. The gas cylinder filled with 26 litres LPG still no weighs 23 kilograms. Dal is well below the Arbo-norm of 25 kg which the Labour Inspectorate proposes lifting manually. Steel tankjes roads filled soon 43 kg.

The new tank is not only much lighter, but this gas cylinder is also transparent. At a glance is to see how much fuel is left in the gas cylinder is. Ideal, because if you come with your forklift truck driver so not fast for surprises.

ARBO rules

- filling fuel tanks of fork lift trucks, gas may take place only in the outside air on intended and specially equipped places (petrol stations);
- during filling the gas tanks may not force the engine of the truck;
- While changing the gas tank may within a radius of 3 meters from the gas tank
- connection cannot be smoked and there should be no open flame present;
- also changing the gas tank should only happen in the outside air;
- LPG powered forklift trucks Of parked the valve on the gas tank must be closed;
- powered by LPG transport may not be ridden and decided within this space within spaces may not work. unless there is sufficient ventilation is ensured.



Within driving with a diesel forklift

Since 1 January 2003 it is forbidden for companies to work in up to four tonnes of diesel trucks. Compound substances that contain cancer-Diesel engines are siring (Odor and smoke, but also geluidproducerend). This applies to the category of four tonnes. Any inwards driving with a diesel truck is no longer allowed.

The Labour Inspectorate checks only if there is a complaint is reported. When a violation occurs after a warning of a transitional arrangement half a year in operation, in which an alternative must be purchased in the form of an electric forklift, or an LPG-implementation with catalyst. Within that half of the labour inspectorate be temporarily jaarmag there still worked with the diesels, provided these are equipped with a properly functioning oxidation catalyst and a soot filter. Then the user still remains in default, then uses the Labour Inspection (inspection SZW) a fine of approximately € 2,250, 00 euro.

Chapter 12. Storage



The choice for a warehouse theorem

A phenomenon is increasingly where the collapse of complete warehouse objectives, this can have various causes, but forget nietdat you are an important link in the whole. Jedaarom have a great responsibility as a driver! Also when it comes to safety turns out cheap duurkoopte very often. There could be many security risks to racking and shelving. To the compulsory periodic inspection, usually once a year, are therefore strict quality demands.

Don't forget that the quality of the working environment for everyone in the warehouse objectives are very

important!

The Arbo safety approval of legislation obliges the warehouse objectives in three moments:

- After installation or relocation;
- After a serious damage;
- Periodically. The working conditions

Decree stipulates that inspections must be carried out by experts and that must be done in compliance with Assembly and disassembly of any indications of the manufacturer. To deliver quality inspectors must therefore be experts in the affiliations of racking and shelving. This means that they must be and have access to experienced and the expertise of the manufacturer.



Period

For active warehouses in which goods using forklift trucks should be withdrawn and the periodic inspection to be carried out annually. For example, In passive warehouses, the warehouse of a museum, in which movements take place, it is much less acceptable if translated to periodically once every three years.

Per warehouse that must be inspected, the necessary inspection frequency should be determined what should be to preserve the safety of the warehouse objectives.

Expert approval

The working conditions Decree does not specify what constitutes 'expertise.' The decision establishes that Assembly and the Assembly must take place in accordance with any instructions of the manufacturer.

Rack/Bar

Racking and shelving, If block stacking is not possible then is storage in objectives the alternative.

The benefits are to places and each pallet is from the

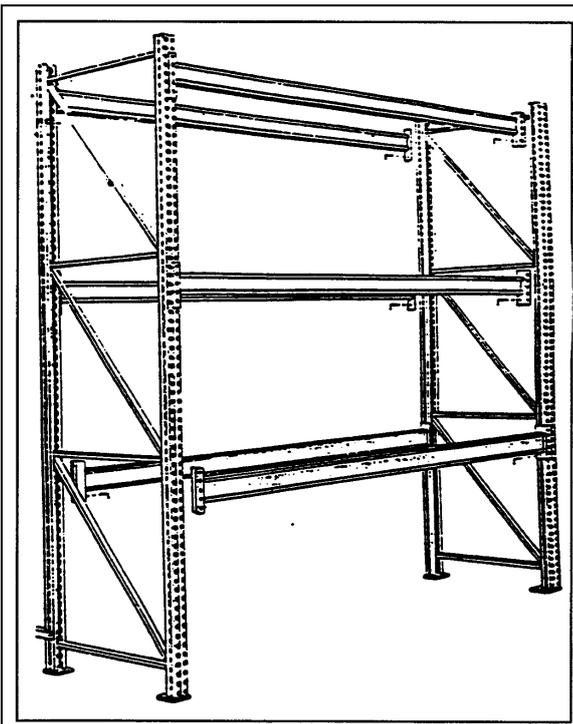
- rack/bar to get without need to move other pallets;
- the chance of damage to the goods and the packaging is smaller than at block stacking;
- one can, if space permits, higher than block stacking the pallets not stacking because on each other but on steel girders rest. Each pallet is basically fast and easy to reach.

The disadvantages are

- Space loss in the warehouse. The steel construction of girders and uprights costs of course space. In addition, there may be space loss in height occur because the goods are stacked on the pallet lower than the height of the box where the pallet is stored. There should also be taken into account when placing manoeuvre and gutting the pallets in and out of the objectives;
- Objectives cost money. The bigger the warehouse, the more so the higher the investment objectives.

There are different types of objectives. The choice depends on the type and shape of the goods, how long the goods remain stored in the warehouse, or goods have to undergo a treatment and or the pallets to be demolished (to say that there are a number of aborted a pallet pallet goods be picked up without the pallet moves need to be).

Pallet types

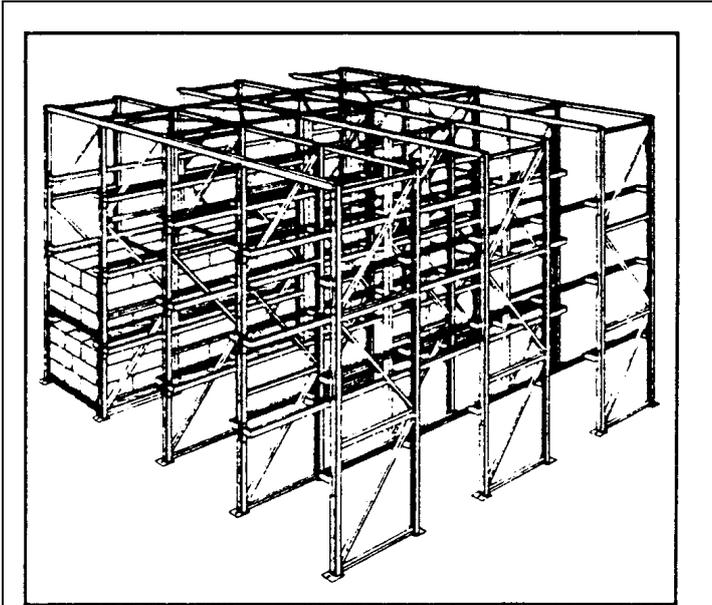


Palletstelling

The pallet rack/bar: this is a construction of vertical and horizontal steel beams, uprights and Recumbents called. The construction is through diagonal or horizontal connectors connected.

In the uprights is a large number of slots made where one can hang the girders in a simple way. The width of the boxes is usually 2,70.

At this width one can block two pallets or three europallets put side by side. Place it against a wall in the free space a single objective, a double objective. The pallet is often applied in warehouses and distribution centers because each pallet is easy to reach and we can put each pallet or get in or out the rack/bar without moving other pallets.



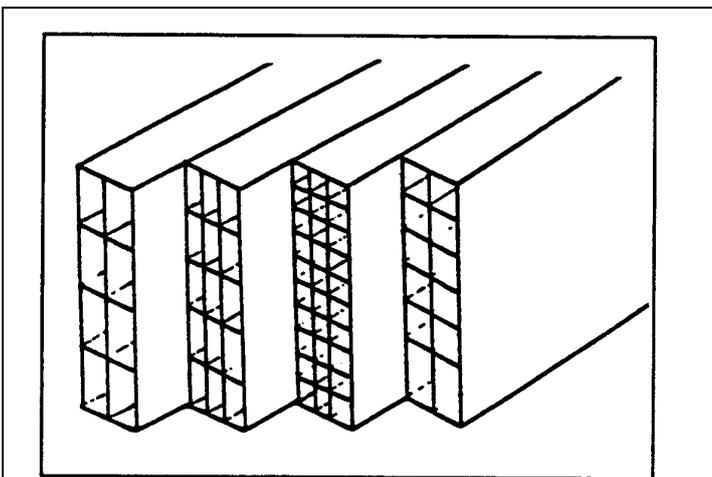
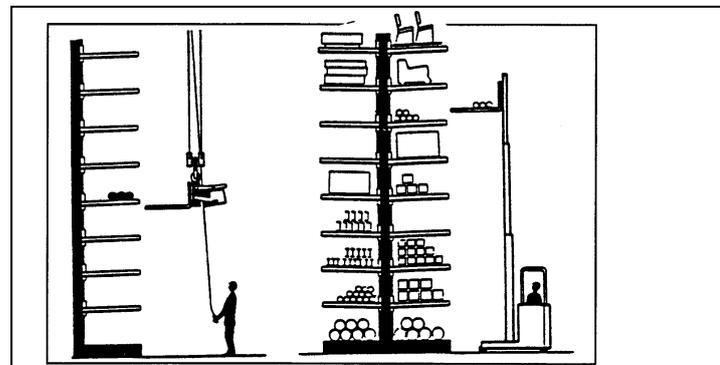
Inrijstelling

Draagarmstelling

The wishbone rack/bar: this rack/bar, also known as Christmas tree called rack/bar, is used for long material. To two interrelated uprights wishbones are confirmed. Long tubes, shelves or pipes can be placed.

Inrij- of Doorrijstelling

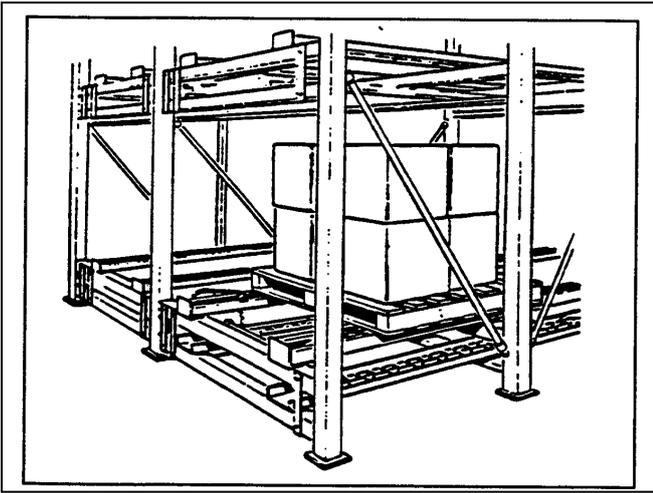
The entry clearance or rack/bar: the way in which goods are stored in this kind of objectives, seems most at block stacking but then in a rack/bar. The advantage is that it has more storage space than with a pallet rack/bar. The disadvantage is that not every pallet is reachable. These objectives be used for pallets with goods that no one can put on top of each other. The goods are of the same type and remain a long time in storage. A entrance rack/bar is placed against a wall, an objective State free clearance in space and there may be removed and pallets from both sides.



Insteekstelling

Plug-in: plug-in is also good for long, but mainly used pipes, slats, profiles and such. The rack/bar is constructed from channels that besides and above each other. The goods are there retracted by means of a block.

One gets in this way a compact, block-shaped rack/bar takes little space. A disadvantage is that the aisle should be as wide as the longest channel to meet there long material from.

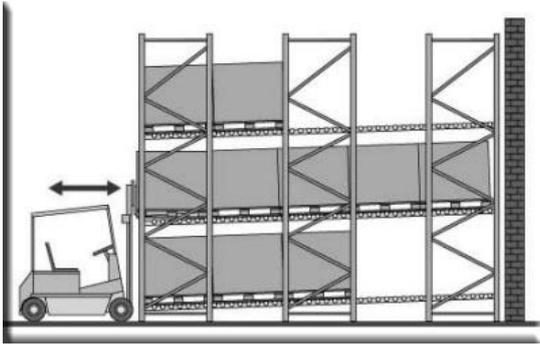


Doorrolstelling

The rolling objective: this rack/bar, the goods are placed on one side of the rack/bar. Then they roll to the other side of the rack/bar. You've so if it were a side bet and a removable side. The roles is done through to the other side in the rack/bar applied roles jobs. These can be placed at an angle causing the pallet by means of own gravity to the other side rolls or rolls are powered.

Examples of misuse





Doorrolstelling



Doorrolstelling



Inrijstelling



Inrijstelling



Draagarmstelling



Kleinvakstelling



CONTROLE LIJST HEFTRUCK

Datum:	Gebruiker:	Trucknr:
Locatie:	Afdeling:	Urenstand:

Onderwerp	Ma	Di	Wo	Do	Vr	Za	Dg	Wk	Md	Bijzonderheden
1 batterij:										
batterij geladen										
vloeistof peil batterij										
2 om de truck:										
beschadigen truck										
wiel-/velg beschadiging										
bandenspanning / beschadiging										
beschadigen vorken										
hefkettingen										
lekkage (onder truck)										
3 in de truck										
stoel inrichting										
stuurspel max. 1/8										
bedieningshendels										
veiligheidsgordel										
stoel- / voetschakelaar										
dodemansknop										
claxon										
Verlichting, zwaailamp, ect										
urenteller (noteer urenstand)										
test controle lampjes										
noodstop										
parkeerrem										
bedrijfsrem										
olie in hydraulisch hefsysteem										
voorzetapparatuur										
lastdiagram										
veiligheidssignaleringen										

Bijzonderheden:

werk gereed	ja / neen	handtekening controleur	handtekening supervisor
naam controleur		d.d.	d.d.

WIJ VERZORGEN ONDER ANDERE DE VOLGENDE OPLEIDINGEN;

LOGISTIEKE OPLEIDINGEN

Aanvulling Veilig werken met de Reachtruck
Aanvulling Veilig werken met de Vorkheftruck
Herhaling Veilig werken met de Vorkheftruck
Herhaling Veilig werken met de Reachtruck
Veilig werken met de Heftruck - 1 dag
Veilig werken met de Heftruck - 2 dagen
Veilig werken met de Heftruck - 3 dagen
Veilig werken met de Reachtruck - 1 dag
Veilig werken met de Reachtruck - 2 dagen
Veilig werken met de Reachtruck - 3 dagen
Praktijkdag Vorkheftruck
Praktijkdag Reachtruck
Veilig werken met de Elektrische Pallettruck
Veilig werken met de Stapelaar
Veilig werken met de Orderpicktruck
Veilig werken met de Hoogbouwtruck
Veilig werken met de Meeneemheftruck
Veilig werken met de Hoogwerker
Veilig werken met de Verreiker
Veilig werken met de Autolaadkraan
Veilig Hijsen
Veilig werken met de Bovenloopkraan
Basisopleiding Magazijn Medewerker
Basisopleiding Magazijn Medewerker EXTRA
Veilig werken met de Shovel

VEILIGHEIDSOPLEIDINGEN

Basisveiligheid VCA 1 dag
Basisveiligheid VCA 2 dagen
Basisveiligheid VCA Herhaling
Basisveiligheid VCA 1 dag Groen
Basisveiligheid VCA 2 dagen Groen
Basisveiligheid VCA Herhaling Groen
Basisveiligheid VCA 1 dag Buitenlands
Basisveiligheid VCA 2 dagen Buitenlands
Basisveiligheid VCA Herhaling Buitenlands
Veiligheid voor Operationeel Leidinggevend 1 dag
Veiligheid voor Operationeel Leidinggevend 2 dagen
Bedrijfshulpverlener Basis 1 Of 2 dagen (HER/NIBHV)
Bedrijfshulpverlener Herhaling 1 dag (HER/NIBHV)
Kleine blusmiddelen
Hoofd BHV, ect.

TRANSPORTOPLEIDINGEN

Chauffeursdiploma CCV/B
Personenvervoer CCV/P
Rijbewijs Vrachtwagen: C
Rijbewijs Vrachtwagen: E achter C
Rijbewijs Bus: D
Rijbewijs Bus: E achter D
Chauffeur Geconditioneerd Vervoer
Transportplanner
Assistent transportplanner
Ondernemersdiploma Taxivervoer
Ondernemersdiploma Busvervoer
Ondernemersdiploma Goederenvervoer (Schriftelijk)
Ondernemersdiploma Taxivervoer (Schriftelijk)
Ondernemersdiploma Busvervoer (Schriftelijk)

GEVAARLIJKE STOFFEN OPLEIDINGEN

ADR Basis
ADR Basis Herhaling
ADR Basis incl. klasse 1 en 7
Veilig werken met de gevaarlijke stoffen

OVERIGE OPLEIDINGEN

Veilig werken met asbest
Herhaling Veilig werken met asbest
EHBO
EHBO Herhaling
Preventiemedewerker
Veilig werken met verontreinigde grond
Inspectie gereedschap en materiaal
Flensmonteur (lage druk)
Herhaling Flensmonteur

en nog veel meer opleidingen en diensten



**Bezoekadres: Modemweg 17
3821 BS Amersfoort**

**Postadres: Postbus 60
3830 AB Leusden**

**Telefoon: 033 - 450 6270
Fax: 033 - 450 6278**

**Internet: www.her-opleidingen.nl
E-mail: info@her-opleidingen.nl**