



<b>NEN-EN-ISO 9001:2000</b> 	<b>Erection and Maintenance Manual</b> Shipping and Storage Instructions  <b>Louvres</b>	
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## Foreword

This manual describes the working, assembly and maintenance of equipment supplied by Geha BV.

You should follow these instructions while placing and assembling the equipment. If in doubt always contact Geha BV.

Installation, taking into service and maintenance may only be carried out by experienced and well-trained fitters.



A great deal of attention has been paid to safety provisions, so that the reliability of the equipment and safe working is guaranteed. All safety components must be fitted before taking into service.

## 1 Introduction

### 1 – 1 Supplier information

Name of company: Machinefabriek Apparatenbouw Geha bv  
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7833HN Nieuw-Amsterdam  
The Netherlands

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## 1 – 2 Purpose of the equipment

The equipment described in this manual has not been designed to function as an independent piece of equipment and may, therefore, only be used as part of a complete installation, for example a heat exchanger. This complete installation must be fitted with all the protection, safety and control equipment required.

The permissible ambient temperature for the standard Geha louvres is 0°C to 60°C. The minimum and maximum temperatures quoted may only be exceeded if this is shown on the accompanying assembly drawing.

If the air or ambient temperature is likely to be under freezing point protective measures must be taken in time to prevent moving parts from freezing fast.

## 1 – 3 Description of the equipment

In most cases a gaseous medium (air) is led through a heat exchanger. Geha louvres control the quantity of medium flowing through the system.

A louvre consists of a number of moveable slats fixed in a frame.

An operating strip on one side of the louvre couples the slats together. All slats move simultaneously. See Fig. 1.

Louvres wider than 3,000 mm have an operating strip on both sides.

Fig. 1

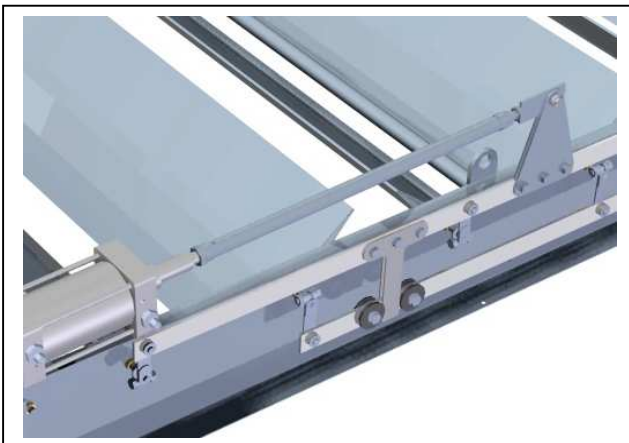


Fig. 2



Depending on the size of the heat exchanger a louvre can be placed as one unit, or be coupled to a second or more louvres. See Fig. 2

Geha louvres are designed either for horizontal or vertical placing depending on the application, whereby the slats can be positioned either horizontally or vertically.



Geha louvres can be separated into the following main groups:

- Automatic operation (Excess pressure valve = EPV)
- Manual operation (Fig. 3)
- Electrical operation (Fig. 4)
- Pneumatic operation (Fig. 5).



Fig. 3

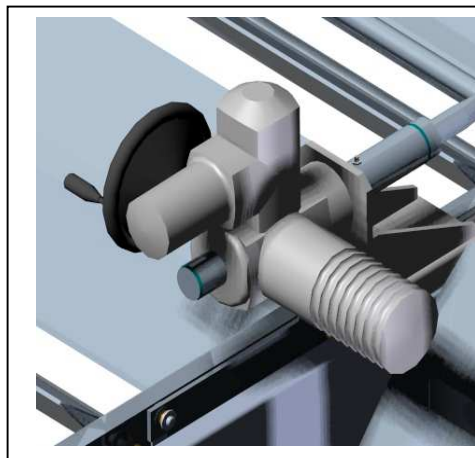


Fig. 4

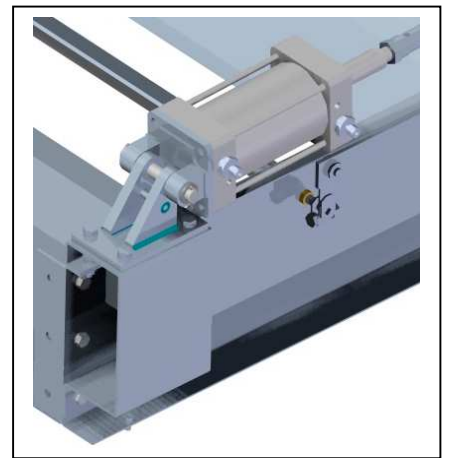




Fig. 5

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## 2 Safety

### 2 – 1 Use of personal protection equipment

As well as the legally required safety equipment plus that prescribed on site we advise the use of:


Helmet, gloves, safety glasses	When lifting and assembling the equipment and for all work with the equipment
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### 2 – 2 Safety risk

A louvre has moving parts. When adjusting the slats special care must be taken to avoid limbs becoming trapped between the slats, between the driving strips and between the cylinder driving rod.

### 2 – 3 Take safety measures into account

After checking all machine settings as described in this manual, any safety grids and all other safety provisions applying to the entire installation must be fitted. Only after that may the drive be connected to the mains power supply or compressed air supply.

<b>Warning:</b> 	If a louvre can be reached from the work floor or a platform during normal operation the moving parts and heated parts must be protected by a protective grid.
	This grid does not form part of the standard delivery of the louvre.

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### 3 Transport and storage


#### 3 – 1 Transport

The transport is arranged as described below depending on the size of the equipment.

- Fully assembled louvre
- Louvre and drive separate
- Separate louvre sections that will later form one field

#### 3 – 2 Lifting the parts

A louvre section must always be lifted using a 4-branch chain sling of sufficient length. The weights of the various parts are shown on the packing list sent with the delivery.

<b>Warning</b> 	<b>Lift the louvre only by the lifting hooks</b>
	These lifting hooks are exclusively for lifting the louvre by itself or with the drive attached. See Fig. 6
	Never lift a louvre field formed from more than one section coupled together. Never lift a louvre that is connected to a heat exchanger.

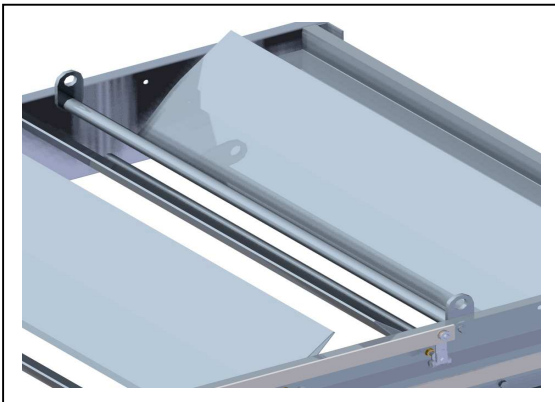




Fig. 6

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### 3 – 3 Storage conditions



#### **Fully assembled louvre**

Store on flat surface with top covered. (Do not walk on it!)

#### **Louvre and drive unit separately**

Store the separate parts as follows

- Louvre on flat surface with top covered. (Do not walk on it!)
- A maximum of 8 louvres can be stacked together
- Leave the separate drive units on the pallets
- Keep the box or chest containing the fixing materials as delivered in a dry place

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## 4 Assembly, installation and taking into service

Fixing and assembling Geha louvres must be carried out by experienced fitters. There are no special tools required for installing and/or assembling the louvres.

The slats of the louvre are fixed with safety wire for transport. This must be removed before assembling.

### 4 – 1 Fitting / assembling a fully assembled louvre

See the assembly drawing enclosed.

The louvre must be assembled on a smooth and stable surface so that it is even and rectangular.

If more than one louvre are to be coupled to each other then they are marked with corresponding codes, e.g. A-A or B-B etc.

### 4 – 2 Fitting / assembling the separate drive unit

Fit the cylinder mounting to the louvre frame. The bolts are supplied already positioned in the cylinder mounting.

Before the cylinder is fitted in the mounting the specifications of the drive unit should be checked with the information given in the parts list.

Fit the triangular drive plate, and pull the louvre slats shut by hand. Push the driving rod completely into the cylinder.

Fit the forked rod to the driving rod. Turn the forked rod until the position of the hole in the fork is in line with the hole in the triangular drive plate.



Connect the parts to each other, lock the axle of the driving rod using a Starlock, and tighten the locknut on the cylinder.

If the louvre has a return spring fit this and lock it in place.

### 4 – 3 Connecting

See the manuals provided by the relevant manufacturer of the electrical and/or pneumatic drives and positioners.

**NB: the louvre must be earthed in the correct manner before taking into service.**


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## 5 Operating

Because a louvre forms part of an installation to be assembled together no separate operating instructions are given.

The operating regulations, pictograms and instructions are the responsibility of the customer or end user of the entire installation.

## 6 Maintenance

<b>Warning</b> 	<p>The electrical power and air supply to the drive unit must be disconnected and the main switch locked (lock fitted to the main switch) before any work is carried out on the louvre.</p> <p>It is not permitted to walk on the louvre slats. Danger of falling!!</p>
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The bearings of the louvre slats are maintenance-free and do not have to be lubricated again.

If the louvre has manual operation this should be greased once a year.

The surface of the louvre should be checked regularly for contamination (depending on the environment and conditions). Snow, dirt, birds etc. can cause the slats to be loaded such that they can no longer be guaranteed to work properly.

If the louvre is fitted with a drive / positioner this should be maintained in accordance with the manual supplied by the relevant manufacturer.

## 7 Appendices (if applicable)

- Assembly drawing
- Drive / positioner manual
- Manufacturer's declaration
- Atex declaration