

**OPERATOR'S
MANUAL H35-1
2 CIRCIUT**

OPERATOR'S MANUAL H35-1

ELECTRONIC 2 CIRCUIT TENSIONING SYSTEM

Serial no.	35.____
Max. frame size	____ x ____ mm
Date of manufacturing	____.20__
Software	SPS SW-Version ____. Text SW-Version ____.
Electric connection	_ x ____ V (+6 / -10%) + N + PE 50 / 60 Hz
Consumption	0.5 kW / 2.0 A
Compressed air connection	8 - 10 bar approx. 100 l/min.
Noise emission	below 70 dB
Colours	aluminium / blue RAL 5017

Observe:

Before connecting and/or using the above mentioned machine, you must read this manual completely and carefully to avoid any injuries or damages !!

HARLACHER Ltd
Kammistrasse 11
CH - 3800 Interlaken
Switzerland
Tel +41 (0)33 827 02 10
Fax +41 (0)33 827 02 15
e-mail: info@harlacher.ch
www.harlacher.ch

SECTION 1

1 GENERAL INFORMATION

1.1	Area of application	5
-----	---------------------	---

2 SAFETY REGULATIONS

2.1	Introduction	5
2.2	Warnings and danger signs	5

3 INSTALLATION AND COMMISSIONING TESTS

3.1	Location of the machine	6
3.2	Transport and unpacking	6
3.3	Installation and assembly	7
3.4	Electrical connection	10
3.5	Compressed air connection	10
3.6	Performance test	11

4 USE OF THE MACHINE

4.1	General control functions	13
4.2	Positioning the frame	15
4.3	Positioning the mesh	16

5 MANUAL FUNCTIONS

5.1	Manual functions	16
-----	------------------	----

6 PROGRAMMING

6.1	General	17
6.2	Programming tensioning processes	18
6.3	Language selection	19
6.4	Adapting the options	19

7	PROGRAMMING CYCLES	
7.1	General	20
7.2	Automatic tensioning	21
8	INTERRUPTING AND ENDING A PROGRAM	
8.1	Emergency stop	23
8.2	Interrupting a running program	23
9	MANUFACTURER AND MACHINE INFORMATION	
9.1	Manufacturer and machine information	23
10	MAINTENANCE INSTRUCTIONS	
10.1	Periodic controls, cleaning and oiling roster	24
 SECTION 2		
1	WIRING DIAGRAMS	
1.1	Wiring diagrams	25
1.2	Electric spare parts list	26
 SECTION 3		
1	TENSIOMETER 75S	
1.1	Operating manual to tensiometer	28

30.08.2002

1 GENERAL INFORMATION

1.1 Area of application

This tensioning unit is designed to tension screen printing frames with fine to rough polyester, nylon or stainless steel mesh. It is also possible to tension pre-coated mesh. Frames of up to 3000 x 3000 mm can be tensioned. The pneumatic clamps press against the frame (in the standard version) causing a Pre-Stretch effect, this leads to an even tension.

2 SAFETY REGULATIONS

2.1 Introduction

All HARLACHER Machines are designed for maximum safety of personnel, machine and material. They conform with the provisions of the significant standard and directives (CE)

This machine is determined for industrial use and must be operated by trained staff only!

The operating manual, especially the safety regulations must be obeyed!

2.2 Warnings and danger signs



DIRECTION information about technical requirements. Disobeying directions may lead to machine failure or loss of material



CAUTION points of danger which may lead to damage of the machine and / or light to medium injuries



WARNING points of danger which may lead to serious injuries and / or permanent physical damage

3 INSTALLATION AND COMMISSIONING TESTS

3.1 Location of the machine

The location of the machine needs to fulfil the following requirements:

- Well ventilated room under stable climatic conditions
- Hard, level floor – free of Vibrations
- There must be enough space around the machine to place the mesh in the clamps
- The side from which the frame will be placed into the machine must have sufficient space to loads the largest frame without posing a danger
- Various connections (electric/pneumatic) should be as close as possible (to avoid tripping over cables)

The required space for the machine depends on its size and type:

3.2 Transport and unpacking



WARNING Suitable equipment must be used for lifting and transporting the crates and heavy machine parts!

Move the crates as close as possible to the final location of the machine. Carefully open the crate and check for any damage to the equipment. In the case of damage or loss immediately Stop unpacking and contact HARLACHER Ltd., its agent or the transport company to and await further instructions.

Carefully remove all parts in a logical order and check with the attached packing list. Should parts be missing or damaged, inform HARLACHER Ltd. immediately.

3.3 Installation and assembly

- Slide a hook to attach the safety net in the lower channel of the inside of the horizontal beams. It is not possible to slide in the hook after the installation.
- The basic unit, existing of the 4 horizontal beams can be erected. These profiles are ordered numerically in a clockwise direction. The fixed side (with 2 fixed legs) is No. 1. Thereafter the corner connection between profile No. 2 and profile No. 1, No. 3 to No. 2, No. 4 to No. 3 and No. 1 to No. 4. The guiding rail for the clamps must be on top whereas the hooks for the net must be in the inner, lower channel.
- Slide together horizontal beam 1 and 2
- Slide together horizontal beam 3 and 4
- Making sure not to bend the beams, slide the two pairs of horizontal beams together carefully to form a rectangle or square.
- Fix the basic unit (without legs) with the blocking lever in the corner connections
- Place the basic unit (without legs) on a scaffolding to attach the legs. These are numbered as the horizontal beams.
- When all the legs have been attached and tightened the basic unit can be erected on the legs.
- Bring the H35-1 to its final location and anchor the fixed legs to the floor (which must be hard, level and free of vibrations)
- Slide the clamps onto the guiding rails, taking note of the positions of clamps with different widths.



DIRECTION Do not lean or place heavy objects on the installed clamps. The clamps are designed to absorb the forces from the tensioning process and not to bear weight.

- The brackets with the pneumatic ring circuits can be placed on the bottom of the horizontal beams of the basic unit, in the outer channel. The pneumatic ring circuits need to be guided on the outside of leg 1.1 and 1.2 and on the inside of the other legs. Make sure that the supply pipe is on the same side as the control unit.
- Connect all clamps to the ring circuit (diagram 3.2/3.8). Blue in the front, black respectively red, at the back. The pipes are easily be plugged in with the quick connectors.
- Place the safety net into the hooks and pull it tight with the surrounding line (in the net). The safety net is to catch the tensiometer in the case of mesh tearing and should therefore not be too loose.
- Place the control unit in its final location and plug in the pneumatic connections. The blue pipe to the blue connectors and the black pipe to the black connectors.

Diagram 3.1 Partial view H35-1

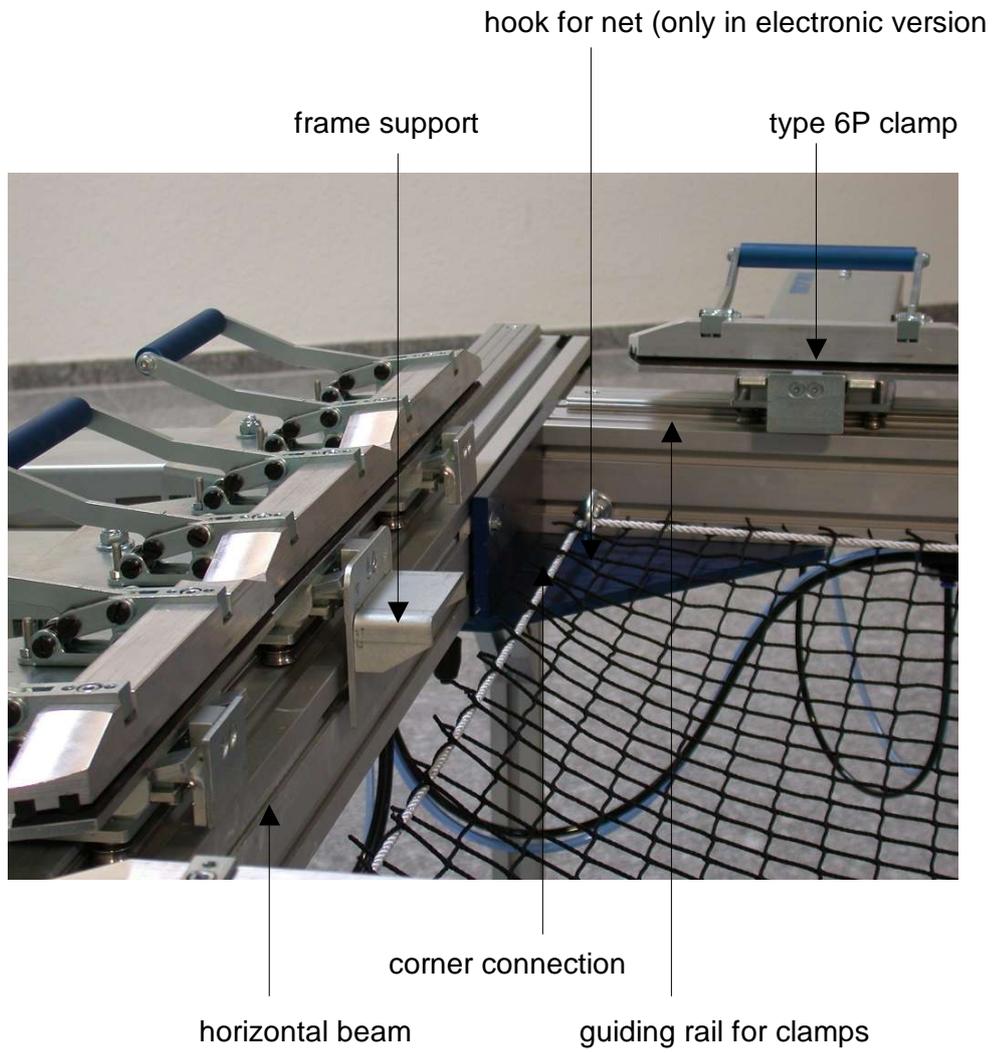
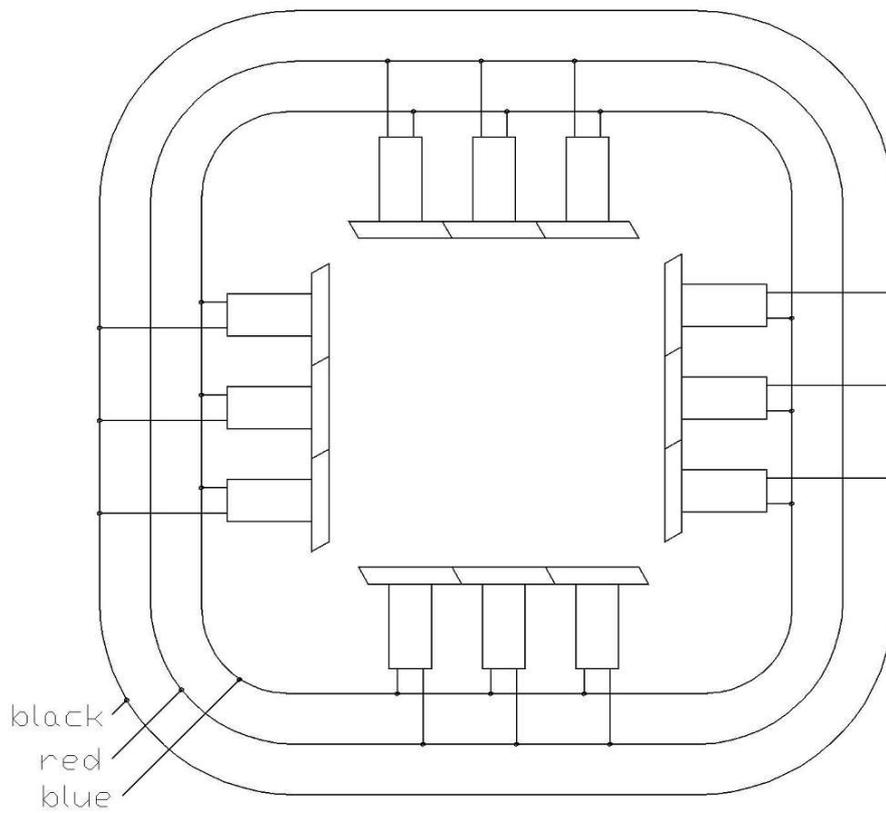


Diagram 3.2 Pneumatic diagram 2 circuit



Connections on the circuit

- blue: basic pressure
- black: working pressure circuit X
- red: working pressure circuit Y

To take the machine apart, the steps must be reversed. Make sure to disconnect the compressed air and mark all parts before taking the machine apart

3.4 Electric connection



WARNING The machine needs to be connected by a qualified electrician. All information regarding electric connection can be obtained from the attached wiring diagrams.

- Now the control unit can be connected electrically and pneumatically by a competent and qualified person.

3.5 Compressed air connection



WARNING As soon as the compressed air is connected, the clamps can begin to move. No person or material are allowed to be in the same area as the clamps!



CAUTION Shut off the air supply hose before connecting the quick connectors. Now plug it into the rear side of the control unit. Always disconnect the air supply before working on the pneumatic system.

Connect clean, oil and water free, compressed air with min 8 bar pressure. Check the adjusted pressure on the manometer (black pressure regulator) in the control unit (diagram 4.2) and set it to 8 bar. A water filter is also situated in the control unit (water in the glass can be emptied by pressing the button)

Data about air performance and use	Use:	up to 25 clamps	~100 l/min
		up to 50 clamps	~150 l/min
		up to 100 clamps	~200 l/min
	Volume:	up to 25 clamps	~ 20 l
		up to 50 clamps	~ 50 l
		up to 100 clamps	~100 l

3.6 Performance test

Before the first installation the manometer in the control unit needs to be set as follows:

Basic pressure: White precision pressure regulator 5.0 bar

Working pressure: Black pressure regulator 8.0 bar



DIRECTION Since the tensiometer is connected to the control unit, make sure that the battery is turned around, i.e. so that there is no contact. The battery may not be removed due to weight reasons.

Connect the tensiometer to the control unit and place it on the provided glass pane. Switch the machine on at the main switch.

The following texts are displayed after each other:

```
PNEUMATIC TENSIONING
SYSTEM H35-1/H37-1
SW-Version 09.09
Text-Version 01.00
```

Diagram 3.3

after a few seconds

```
** H35-1/H37-1 **
Version 09.09
HARLACHER AG
CH-3800 INTERLAKEN
```

Diagram 3.4

after about 10 seconds

```
F1 Manual mode
F2 Automatic mode
F3 Set-up mode
F4 Informations
```

Diagram 3.5

Main menu

press "F1", the following is displayed



Diagram 3.6

Tension with the “F1” key. The clamps in the Y circuit move backward. The pressure in the manometer on the control unit drops. The lower the pressure, the higher the tensioning in the clamps.

Change to the X tensioning circuit with “F3”.

Tension with the “F1” key. The clamps in the X circuit move backward. The pressure in the manometer on the control unit drops. The lower the pressure, the higher the tensioning in the clamps.

Relaxation can be done with “F2”. If there is no mesh in the clamps, the clamps will only move to the start / end position in the last phase of relaxation. During the process, the pressure in the manometer rises again.

Change back to the Y tensioning circuit with “F3”. The Manometer will now show the current pressure from the Y tensioning circuit.

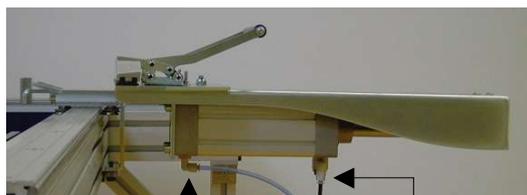
Relaxation for the Y tensioning circuit can also be done with “F2”. During the process, the pressure in the manometer rises again.

If the clamps move in the above mentioned manner, everything is connected correctly and the control unit as well as the valves are in working order.

Diagram 3.7 clamps at the front stop – start position (loosen)



Diagram 3.8 clamps at the back stop – end position (tension)



front connector for
basic pressure
(blue piping)

back connector for
working pressure
(black piping)

4 USE OF THE MACHINE

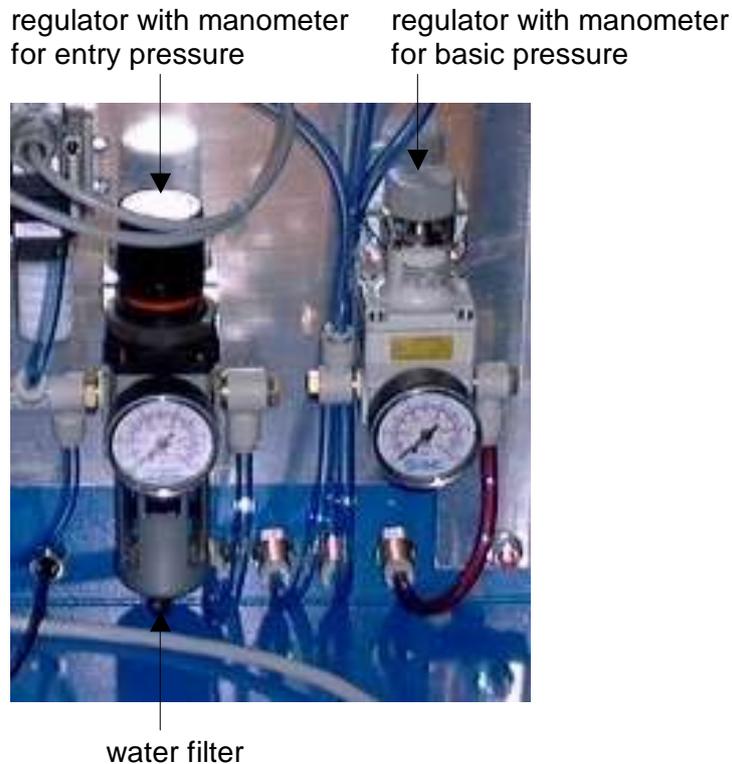
4.1 General control functions

The clamps of the HARLACHER h35-1 are moved pneumatically, controlled by the electronic control unit (diagram 4.1). In the start position (diagram 3.7) all the clamp cylinders, both in the loosen (working pressure) and tension (basic pressure) directions, are under pressure. Tensioning is caused by lowering the working pressure. The lower the working pressure, the greater the difference in pressure to the basic pressure and therefore, the greater the tensioning force.

Diagram 4.1 View of the control unit



Diagram 4.2 View of compressed air preparation in the control unit



Entry pressure

Set the entry pressure (diagram 4.2) at approx. 0.5 bar below the minimal value of your net pressure (air pressure at the supply). 8.0 bar is optimal, there is a manometer at the regulating valve. The manometer is found at the pressure valve.

Basic pressure

Basic pressure is responsible for moving the clamps backwards (tensioning). This pressure can be adjusted at the regulator for basic pressure (diagram 4.2) and should be 5.0 bar. Optimally at 6 bar. Once basic pressure has been set, it should not be changed anymore. A change in the basic pressure is connected to the regulating pressure and has a direct influence on tensioning results. There is a manometer at the regulating valve.

Working pressure

The lower this pressure, the higher the tensioning. If the working pressure is at the maximum level, the clamps move to (or stay in) the start position (loosen) (diagram 3.7). The working pressure can adjusted manually or automatically via the electronic control unit. The manometer to show the pressure, is situated next to the display.

Net Pressure

The pressure in the compressed air connection of the building which is connected to the

Using the H35-1 is very simple and logical. The keys below the display have the following, fixed functions:

➡	Cursor	The cursor can be switched on or off. When the cursor is switched on, the position in the display that needs to be changed flashes. The flashing item (curser) can be changed by means of the “<<“ and ”⏴“ keys.
?	Information	When the display is blank, this key activates the actual text display.
<<	Back	This allows the cursor to be moved one position, from right to left. When the cursor is switched off, this key allows one to page back.
⏴	Forwards	This allows the cursor to move down one row. When the cursor is switched off, this key allows one to page forward.
+	Plus	The Parameters are increased
-	Minus	The Parameters are decreased
↵	Enter	Changes are confirmed and saved with the enter key. The enter key needs to be pressed after each parameter change so that the new parameter can be saved.

The four keys “F1“, „F2“, „F3“ und „F4“ on the left and right of the display have changing functions. The current function is indicated next to the key in the display (diagram 4.3) or the function is described in the display (diagram 4.4).

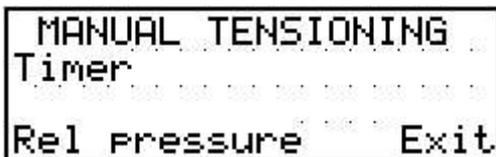


diagram 4.3

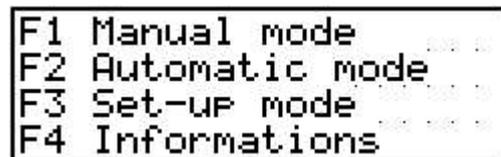


diagram 4.4

4.2 Positioning the frame

By pulling out or pushing in the H35-1 can be adapted to various frame sizes. The frame to be used can be placed on the frame supports (diagram 3.1), which are attached to 4 clamps (in larger machine at 6 - 8 clamps). The correct height can easily be set at the frame support. The upper side of the frame (which is to be glued) should be min.1 to max. 10 mm above the mesh. By using a level, stable plate, several frames can be tensioned simultaneously.

4.3 Positioning the mesh

- The mesh must be placed straight into the clamps in the X tensioning circuit.
- Be sure to place the mesh in the clamps so that the entire clamp is full. Mesh which is only partially placed in clamps leads to uneven tension and even tearing of the mesh.
- The clamps on one side of the mesh must be placed so close to each other that there are no gaps between the separate clamps.
- Pre-stretch the mesh. In manual mode, 30% - 50% of the required final tension (see chapter 5.1). In the automatic mode, the mesh will be pre-stretched to a value related to the final tension (chapter 6.4)
- Now the mesh can be placed into the clamps of the Y tensioning circuit
- The lengthwise sides of the mesh (tensioning circuit Y) is not to be clamped to the very end at the corners. Depending on the frame size and mesh type, the distance to the next clamp of the X tensioning circuit should be between 150.200 mm and 50-150 mm.
- Make sure that the mesh is placed on the clamps over the entire width of the mesh
- Now the mesh can be pre-stretched in the crosswise direction (X tensioning circuit). Tensioning slowly until the tension until the same tension as the Y tensioning circuit is reached (chapter 5.1)
During automatic tensioning, after placing the mesh in the clamps, the tension value in the X tensioning circuit will be the same as in the Y tensioning circuit (chapter 6.4)
- Left over clamps can just be left open. During tensioning the empty clamps also move back.

5 MANUAL FUNCTIONS

5.1 Manual Tensioning

After placing the frame and the mesh in the machine, manual tensioning can be carried out. Press key "F1" in the main menu (diagram 5.1) to start tensioning manually (diagram 5.2).

```
F1 Manual mode
F2 Automatic mode
F3 Set-up mode
F4 Informations
```

diagram 5.1

```
MANUAL TENSIONING
+      U: 09 %
  actual tension:
-      @x@x      Exit
```

diagram 5.2

The mesh is tensioned or relaxed by pressing "F1" or "F2"

When the tensioning process is completed and the mesh is ready to be glued to the frame, "∨" key can be used to move to the next text display (diagram 5.3).

```
MANUAL TENSIONING
Timer
Rel pressure      Exit
```

diagram 5.3

Press "**F2**" to release the pressure, the clamps move back to the start / end position.

"**F1**" provides the possibility to set a timer (figure 5.4), after the set time is up, the acoustic alarm sounds. This timer may be utilised during tensioning as well as during relaxation periods. A time period up to 99 minutes can be set.



diagram 5.4

The H35-1 control unit does not register any readings from the electronic tensiometer in manual tensioning. The tensiometer can however be utilised and connected to the control unit during manual tensioning. The tension can then be viewed on the display.

6) PROGRAMMING

6.1 General

There are 20 individual, automatic tensioning programs available. Parameters that have been chosen will remain the same until they are re-programmed.



DIRECTION For your safety and security, we recommend that the parameters be stored separately.

The tensioning process can be divided into 3 sections. Sections 1 and 3 consist of the preparation before the tensioning process and the follow-up after ending the tensioning process.

Section 2, is made up of the automatic procedure in the tensioning process, which can once again be divided into 3 “**tensioning steps**”. The parameters in this sector can be freely determined.

In the “**tensioning step 1**” an intermediate tension that is to be reached within a time period determined by the operator is reached. After this intermediate tension has been reached, an intermediate relaxation phase can be programmed. If the tension from the pre-tensioned is higher than the tension in “**tensioning step1**”, the control unit will automatically skip this step.

In the “**tensioning step 2**” a second intermediate tension can be selected, which is also reached within the selected time period. Now a new intermediate relaxation phase can be selected for time period determined by the operator. If the tension reached in “**tensioning step 1**” is higher than the tension selected in “**tensioning step 2**”, the control unit will automatically skip this step.

The desired end results are reached in “**tensioning step 3**”. If the tension in one of the previous steps is higher than the desired end tension, the control unit automatically relaxes to the desired end tension. When the end tension is reached, the relaxation phase begins.

The tension is controlled during the relaxation phase. If the tension varies more than the selected accuracy, it is automatically corrected.

The operator may determine the following parameters:

End values	tension end value, in N/cm end relaxation, in minutes gluing time, in minutes
Parameter Step 1	tensioning step 1, in N/cm, recommended approx. 60 – 70 % of the end value duration of step 1, in minutes relaxation time step 1, in minutes
Parameter Step 2	tensioning step 2, in N/cm, recommended approx. 80 – 90 % of the end value duration of step 2, in minutes relaxation time step 2, in minutes
Parameter Step 3	accuracy in N/cm, recommended 0.5 N/cm length step 3, in minutes

After completing of the relaxation phase, the acoustic alarm sounds, now gluing can commence. After gluing, the gluing timer can be activated. When gluing time is up, the acoustic alarm sounds again.

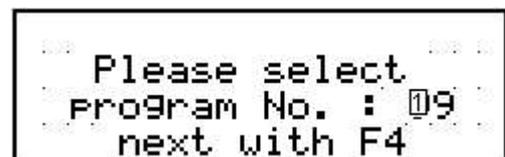
6.2 Programming tensioning processes

Press "F3" (set up) in the main menu. Thereafter the code „300“ can be entered as follows: Press the "+" key 4 times, until the cursor shows a 3, then press the "<<", the cursor moves to the last line. Now, using the "+" key, 0 can be set (by pressing once), the "<<" key can be used to move to the left and 0 can be selected again (order 3, 0, 0). Press "J" to return to the set up menu (diagram 6.1). To select a tensioning program, press "F2" (programming), the programming menu as in diagram 6.2 is shown.



```
F1 Manual functions
F2 Programming
F3 Language
F4 Options (Code)
```

diagram 6.1



```
Please select
Program No. : 09
next with F4
```

diagram 6.2

Select the desired program No. by means of the "+" or "-" key, then press "F4". The parameters can then be programmed as shown on the following 4 pages (diagram 6.3 to diagram 6.6):

```

General Parameters
Final tension:  0999
Final relaxation: 29
Adhesive dry time:09

```

diagram 6.3 end results

```

Parameter step 1
Tension step 1 :0999
Duration step 1:  29
Relax time step 1:09

```

diagram 6.4 Parameter step 1

```

Parameter step 2
Tension step 2 :0999
Duration step 2:  29
Relax time step 2:09

```

diagram 6.5 Parameter step 2

```

Parameter step 3
Accuracy : 099
Duration : 29

```

diagram 6.6 Parameter step 3

Each value needs to be saved by pressing “↵”. When all the values on one page have been programmed, “→” must be pressed to switch off the cursor and the “⏴” can be used to page down.

This process can be repeated with the various parameters.

After entering all the values, press “→” and go back to the first page by means of the “⏴” key. Here a new program can be selected or the “<<” key can be pressed to return to the main menu.

6.3 Language selection

Open the programme menu as in 6.2. Press “F3” (Languages). The “⏴” can be used to page until the relevant language with the appropriate no. appears. Now press “→” and select this no. Press “→” again and then “F4”. Now the main menu appears but in the newly selected language.

6.4 Adapting the options



CAUTION In order to avoid malfunctions, options should only be altered by professionals!

Open the set up menu as in 6.2. Press “F4” (options) and enter the code “300”. The available options can be activated with a “1” or deactivated with a “0”. Activating and deactivation needs to be confirmed with the “↵” key. The “⏴” can be used to page.

In the options, the value for pre-tensioning and tension speed can be adjusted. (diagram 6.7)

The pre-tension value, which is dependant on the end tension of the mesh, occurs directly after the mesh has been position in the unit. This value is indicated in percentage of the end value. As is value is not controlled by the tensiometer, factors such as type of mesh and tensioning area may result in differences in this value. The pre-tension value should be set so that a minimum of 7N/cm is reached. Optimally a value between 30% and 50% of the end tension should be selected.

The tension speed value, refers to the speed of the tension intervals which are determined by the control unit. The factory settings of this value is at "20" and may not be changed for standard applications.

Adjusting this value could mean that the programmed tension may not be reached because the tension interval may be larger than the tolerance of the desired end tension

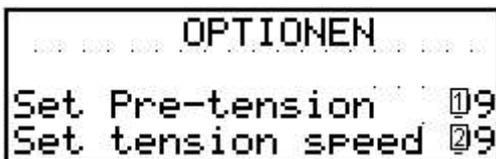


diagram 6.7 pre-tension and tension speed

7 PROGRAMMING CYCLES

7.1 General

Before starting a program, all the clamps need to be in the start position. The display must be free of error messages.

While the program is running, the programme No., current phase of the program, current tension, end tension of the current tensioning step and the time remaining are displayed.

During the tensioning process, the working pressure shown in the manometer of the control unit falls.

The green and red optical indicator shows whether the program is in an independent program phase or if it is necessary to intervene. Red means the machine is operating independently and that no intervention is required. Unnecessary interventions can disturb the program and may lead to tearing of the mesh or programme failure.

Green indicates that an intervention is allowed or even required. This is the case in the preparation phase and in the gluing phase.

An acoustic alarm sounds at the end of the tensioning phase (including relaxation) and at the end of the gluing time.



DIRECTION Do not touch or move the tensiometer or the clamps while the clamps are in motion.

7.2 Automatic tensioning

The control unit of the H35-1 is designed so that the tensioning process proceeds after manually placing the mesh into the clamps. while laying in the mesh, the display guides the operator through the program as follows:

```
F1 Manual mode
F2 Automatic mode
F3 Set-up mode
F4 Informations
```

diagram 7.1 main menu

Press “**F2**”, the following is shown in the display:

```
Please select
Program no. : 09
Start with F4
```

diagram 7.2

Select the desired program and start with “**F4**”

```
Place mesh in clamps
F2 cancel next F4
```

diagram 7.3

Position the mesh as described in 4.3 and press “**F4**”. The mesh is now automatically pre-tensioned

```
Place tensiometer
on glass plate
(calibration)
F2 cancel next F4
```

diagram 7.4

Place the tensiometer on the glass pane and press the “**On/Res**” key on the tensiometer. As soon as the calibration is repeated (-- --.--) press “**F4**”

```

Calibration complete
          1x2x N/m
F2 cancel      next F4
  
```

diagram 7.5

Place the tensiometer in the weft direction of the mesh and press "F4" to start the independent tensioning process. The following text is displayed:

```

Prog. no. 09 running
          step 1
actual  ften  time
 2999   3999   4999
  
```

diagram 7.6

```

Prog. no. 09 running
          relax step 1
actual tens.  time
 2999         3999
  
```

diagram 7.7

```

Prog. no. 09 running
          Step 2
actual  ften  time
 2999   3999   4999
  
```

diagram 7.9

```

Prog. no. 09 running
          relax step 2
actual tens.  time
 2999         3999
  
```

diagram 7.8

```

Prog. no. 09 running
          Step 3
actual  ften  time
 2999   3999   4999
  
```

diagram 7.10

```

Prog. no. 09 running
          end relaxation
actual tens.  time
 2999         3999
  
```

diagram 7.11

```

tensioning completed
          start glue F4
  
```

diagram 7.12

The tensioning process is concluded and an acoustic alarm sounds. The mesh can be glued to the frame, now press "F4" to start the timer



diagram 7.13

After the gluing time is up, an acoustic alarm sounds. Relaxation is started by pressing "F3". As soon as relaxation is completed (approx. 10-15 seconds), the menu can be changed and a new program can be selected.

8 INTERRUPTING AND ENDING A PROGRAM

8.1 Emergency stop

The machine is switched off completely by pressing the emergency stop. The clamps move into the start position.

The emergency stop can be released by turning the knob in the indicated direction.

8.2 Interrupting a running program

A running program can be interrupted by pressing "F4". The tensioning process remains in its current state and the main menu is shown in the text display. Now tensioning or relaxing can be continued manually. It is also possible to return to automatic tensioning. Laying in the mesh (diagram 7.3) only need to be confirmed. The functions from figure 7.1 to 7.5 need to be entered again. In this way the tensioning process carries on where it was interrupted.

It is possible to lay mesh into the machine and do the preparation phase manually and then complete the tensioning process automatically.

9 MANUFACTURER AND MACHINE INFORMATION

9.1 Manufacturer and machine information

Press "F4" (information) in the main menu.

- In "F1" (machine information) the software version can be found. "V" leads to the options and amount of processes as well as the total amount of working hours.
- In "F2" (manufacturer) the address, telephone no, fax no. and e-mail address can be found.
- In "F3" (time / date) the current time and date is displayed. This can be programmed with the "→", "+", "-" and "↵" keys.

10 MAINTANACE INSTRUCTIONS

10.1 Periodic controls, cleaning and oiling roster



DIRECTION In order to ensure a long life span of the machine, the below maintenance instructions should be followed. Disregarding these instruction can lead to a guaranty regress!

The machine should always be kept clean and dry. After gluing, any remaining glue should be carefully removed and blank metal parts should lightly oiled.

- daily: Clean any dirt resulting from gluing. Take note to keep the rubbers in the clamps clean as dirty rubber can cause the mesh to slip out of the clamps.
- weekly: control the level of the water in the water filter which is situated in the control unit and if necessary, empty the filter by pressing the button. View all moving parts.
- monthly: lightly oil the piston rod of the pneumatic cylinder (with e.g. "WD 40")

The control unit and display has a back-up battery to save programmed parameters when the machine is switched off. This battery has a life of approx. 4-5 years and should therefore be exchanged after about 4 years.

SECTION 2

WIRING DIAGRAM

HARLACHER H35-1

HARLACHER Ltd
Kammistrasse 11
CH-3800 Interlaken
Switzerland
Tel +41 (0)33 827 02 10
Fax +41 (0)33 827 02 15
info@harlacher.ch
www.harlacher.ch

SECTION 3

OPERATING MANUAL TO TENSIO METER T75S

HARLACHER Ltd
Kammistrasse 11
CH-3800 Interlaken
Switzerland
Tel +41 (0)33 827 02 10
Fax +41 (0)33 827 02 15
info@harlacher.ch
www.harlacher.ch