

ENGINEERING  
TOMORROW

*Danfoss*

Operator's Manual

# Danfoss Control C.2

## Control System



## Imprint

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**This Operating Manual of the machine is a translation; the original is in German.**

**Date of revision: 2023-06-15**

**Version: 1.0**

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## Imprint

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# Contents

<b>1</b>	<b>About this document</b> .....	<b>6</b>
1.1	Storage .....	6
1.2	Figure presentation .....	6
1.3	Abbreviations .....	7
1.4	Accessories .....	8
<b>2</b>	<b>Safety instructions</b> .....	<b>9</b>
2.1	Presentation of warning notes .....	9
2.2	Safety instructions .....	9
2.1	Use in compliance with intended purpose .....	9
<b>3</b>	<b>Control description</b> .....	<b>11</b>
3.1	Operation and display elements .....	11
3.2	Foot pedal (accessory) .....	12
3.3	Operation modes .....	12
3.4	Control operation .....	14
<b>4</b>	<b>Start screen</b> .....	<b>16</b>
<b>5</b>	<b>Crimp using workpiece table</b> .....	<b>17</b>
5.1	Start screen .....	17
5.2	Select workpiece specification .....	18
5.3	Verify and adjust settings .....	21
<b>6</b>	<b>Crimp without workpiece table</b> .....	<b>24</b>
6.1	Start screen .....	24
6.2	Manual operation .....	25
6.3	Semi-automatic operation .....	27
6.3.1	Form to a diameter .....	28
6.3.2	Form to a pressure value (only PFM and PFC) .....	32
6.3.3	Operating pressure and counter settings .....	37
6.3.4	Load data record from database .....	38
6.3.5	Load data record using a scanner (option) .....	40
<b>7</b>	<b>Control settings</b> .....	<b>42</b>
7.1	User log in .....	42
7.2	Data base .....	43
7.3	Data management with a USB storage medium .....	44

## Contents

---

7.4	Crimping die editor .....	45
7.5	User administration .....	47
7.5.1	Language .....	50
7.6	Machine settings .....	51
<b>8</b>	<b>Instructions for action .....</b>	<b>53</b>
8.1	Start-up control .....	53
8.2	Changing the crimping dies .....	54
8.3	Check with calliper (Option) .....	55
8.4	Calibration .....	58
<b>9</b>	<b>Error messages .....</b>	<b>60</b>
9.1	Error message "Oil filter contaminated" .....	60
9.2	Backup and restore CONTROL C.2 .....	61
<b>10</b>	<b>Annex .....</b>	<b>64</b>
10.1	Accessories (retrofitable) .....	64
10.2	Spare parts list .....	65

# 1 About this document

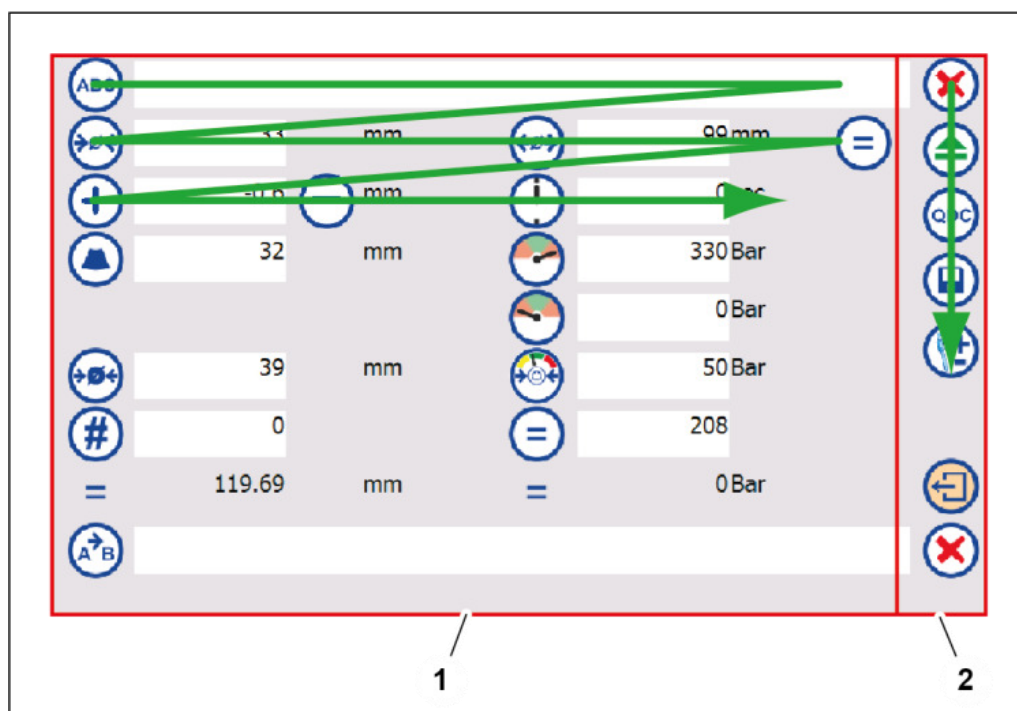
The control unit "Danfoss Control C.2" is consistently designated as control in this Operation Manual.

This Operation Manual includes important notes on how you operate your machine and control safely, properly and economically.

## 1.1 Storage

This Operation Manual is a document also applicable in connection with the Operation Manual of the machine, therefore represents an integral part of the machine and must be kept available at the machine at any time. Upon disposal of the machine, the Operation Manual must also be handed over.

## 1.2 Figure presentation



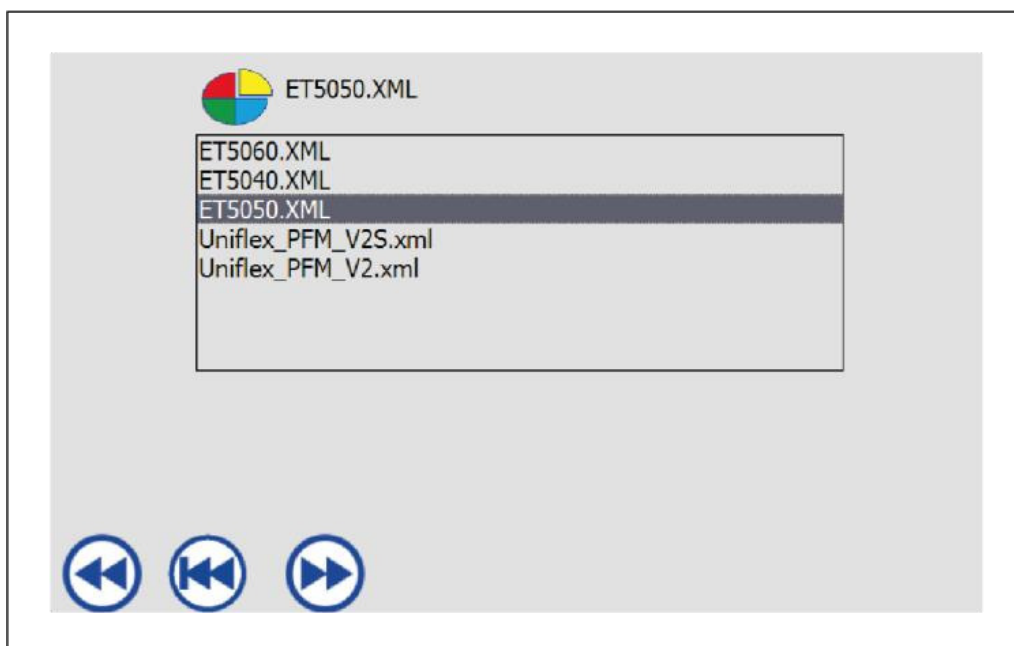
Most figures have two areas:

- Value setting (1)
- General buttons for navigation in the menu bar (2)

The individual elements in the figures are described from left to right and from top to bottom.



The values shown in the figures are given as examples and may differ from actual values - depending on the machine type and the individual selection in the basic settings.



If another user interface (\*.xml file) is being used than the one described in the Operation Manual, the affected Operation Manual must be observed.

### 1.3 Abbreviations

PB	Crimping dies
PFC	Pressure Force Control (pressure joining), option
PFD	Pressure/Force Display
PFM	Pressure Force Monitoring (forming parameter monitoring)
QDC	Quick die change system
UDL	UNIFLEX Data Logging
ULS	UNIFLEX Label System
UTS	UNIFLEX Transfer Software

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ICC	Industrial Crimp Calculator
UPMS	UNIFLEX Paperless Management System

## 1.4 Accessories

The machine may be fitted with accessories. A list of the available accessories is included in the Annex, Section "Accessories".



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## 2 Safety instructions

### 2.1 Presentation of warning notes

Warning notes in the Operation Manual warn against risks involved with the handling of the machine. Risk levels are identified as follows:

**DANGER!**

The signal word HAZARD identifies an imminent hazard resulting in serious injuries or death. This warning is supplemented by a triangular hazard symbol.

**WARNING!**

The signal word WARNING identifies a potentially hazardous situation, which might result in serious injuries or death. This warning is supplemented by a triangular hazard symbol.

**CAUTION!**

The signal word CAUTION identifies a potentially hazardous situation, which might result in light injuries. This warning is supplemented by a triangular hazard symbol.

**ATTENTION!**

The signal word ATTENTION identifies a potentially hazardous situation, in which the product or property in the environment may be damaged. This warning is supplemented by a hazard symbol or a exclamation mark.

### 2.2 Safety instructions

#### 2.1 Use in compliance with intended purpose

This control unit is intended for industrial applications, only to be used to control the supplied UNIFLEX machine.

Intended purposes include:

- Operating temperature between 10°C and 45 °C;
- Operation in a closed room.

Use of the machine in compliance with the intended purpose also includes compliance with the instructions in this Operation Manual.

#### **Use not in compliance with intended purpose**

Any other use is considered as not in compliance with the intended purpose, in particular:

- Manipulations of the control unit;
- Use in explosive environments;
- Use in the open air

## WARNING!



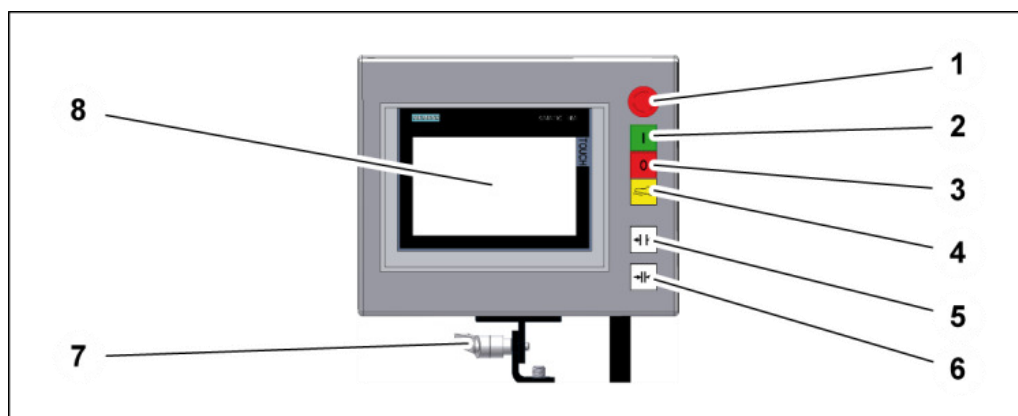
### **Use not in compliance with intended purpose**

Use not in compliance with the intended purpose impose risks for life and health. Consequences resulting from use not in compliance with the intended purpose shall be under the sole responsibility of the owner.

- Always use the machine in compliance with its intended purposes.

### 3 Control description

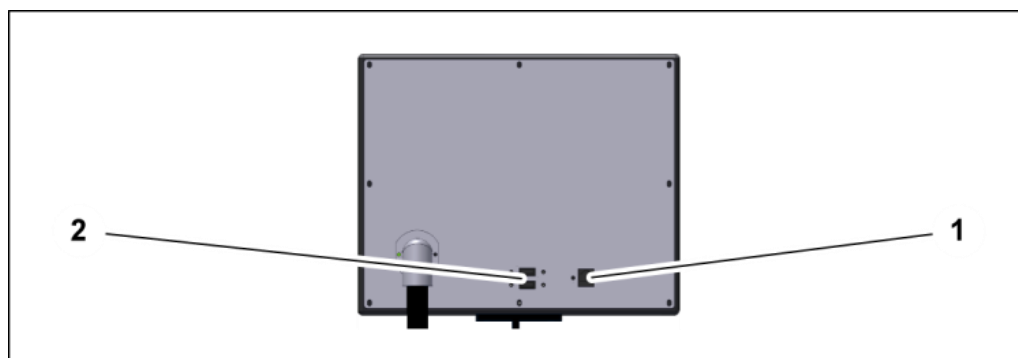
#### 3.1 Operation and display elements



- (1) Emergency-stop button
- (2) Illuminated [I] Motor On button
- (3) Illuminated Motor on button [0] Off
- (4) Illuminated [⌘] foot switch
- (5) Illuminated [↔] Open tool button
- (6) Illuminated [↔] Close tool button
- (7) Locking lever / angle setting
- (8) Control panel of control



The illuminated buttons [I] and [0] may be arranged the other way round, depending on the control version.



- (1) LAN socket to connect a network. Regarding options for connection to a network, please contact UNIFLEX.
- (2) 2 x USB sockets (for the use of memory media/ accessories certified by UNIFLEX)

### 3.2 Foot pedal (accessory)



- (1) Close machine pedal [→|←]
- (2) Open machine pedal [←|→]

#### WARNING!



#### Risk by fatiguing posture!

A static posture may result in work-related musculoskeletal disorders and reduce productivity.

- Make sure that operators have sufficient periods of relief and recreation.

### 3.3 Operation modes

The control provides for the following operation modes:

- Manual operation



is activated in the control. The forming process is controlled manually via the buttons on the control panel or external buttons, e.g. the dual foot switch:

- Buttons Close tool [→|←] and Open tool [←|→].

- Dual foot switch


The right foot switch is used to close the tool and activate

the forming process, the left foot switch is used to open the tool.

- Depth stop  
The tool is closed automatically when the workpiece activates the depth stop by pressure. Press the [↔] button to open the tool.

As soon as the forming diameter or forming pressure defined in the control is reached, the tool stops automatically.

- Semi-automatic operation

 is activated in the control. The forming process is started manually via the buttons on the control panel or external buttons, e.g. the dual foot switch:

- Close tool button [↔]
- Dual foot switch  
The right foot switch is used to close the tool.
- Depth stop  
The tool is closed automatically when the workpiece activates the depth stop by pressure.


As soon as the forming diameter or forming pressure defined is reached in the control, the tool stops and opens automatically.

Production is possible in any operation mode.

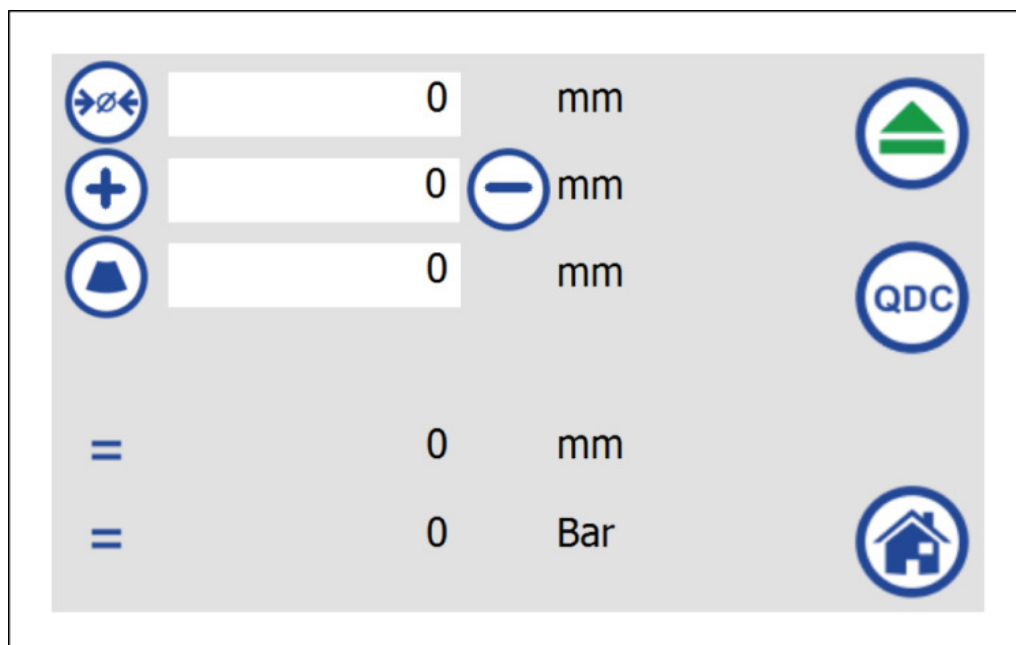


The operation mode selected before deactivating the machine will be active upon a restart. The operation modes are set on the control panel.



When the Foot switch button  is activated, the Close tool button [↔] is inoperative, even if it is illuminated.

### 3.4 Control operation



The control features the following elements:

- Buttons (blue circle)
- Input fields (white field)
- Value display (on grey background)

The control is operated via the control panel:

Tip on the relevant control element,

- either with finger, or
- with a suitable pointer.

#### ATTENTION!



##### **Risk of damage to machinery!**

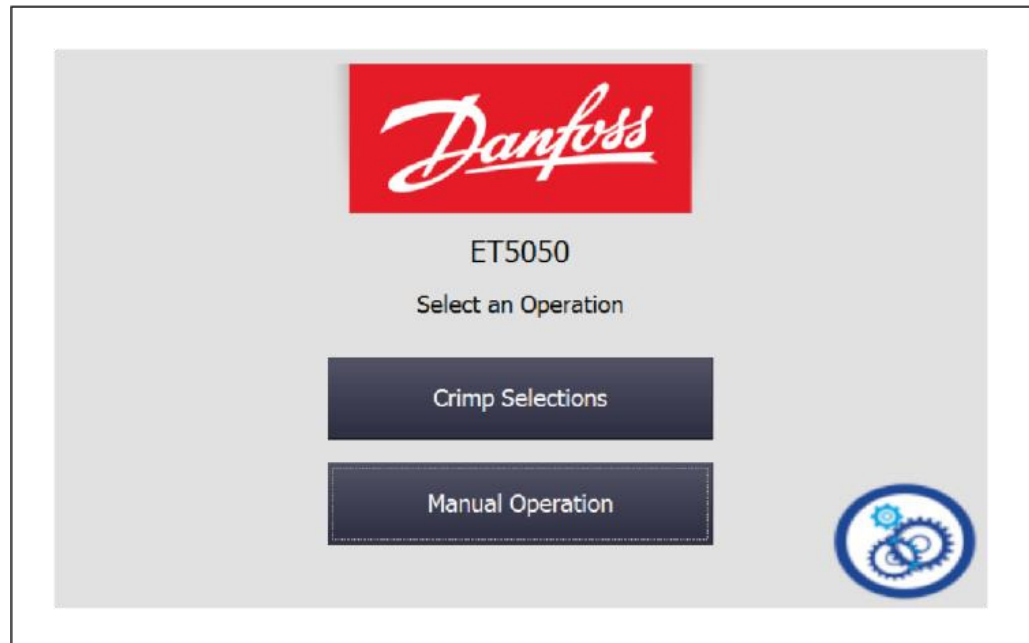
Hard objects or objects with sharp edges may scratch the screen surface.

- Do not use any sharp-edged or hard objects to operate the control.

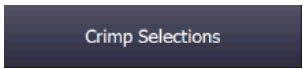
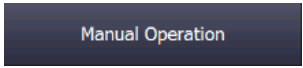



If figures or letters have to be entered, a keyboard or number field showing the permissible range of values will be displayed after touching the control panel.

## 4 Start screen



The following control screens are opened from the start screen:

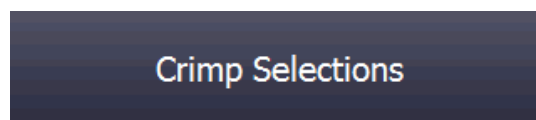
	Workpiece table
	Crimp without workpiece table
	Machine settings



The figures are described in more detail in the Sections below.






## 5 Crimp using workpiece table



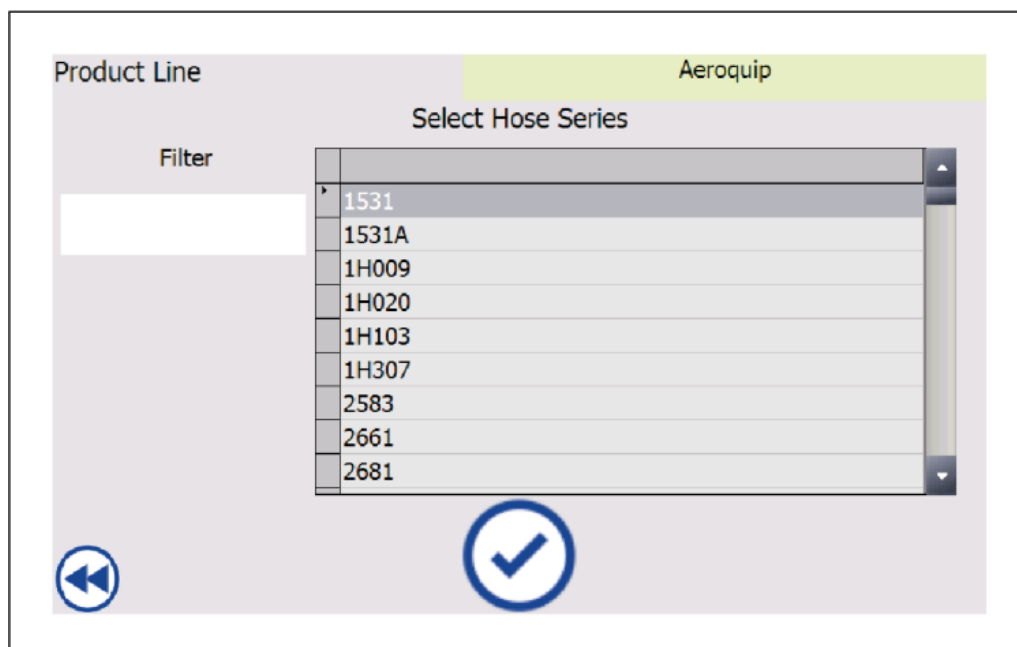
### 5.1 Start screen



This screen is used to select the Danfoss product range from the list.

	Select settings from favourites.
	Select the product range
	Return to previous screen.

## 5.2 Select workpiece specification

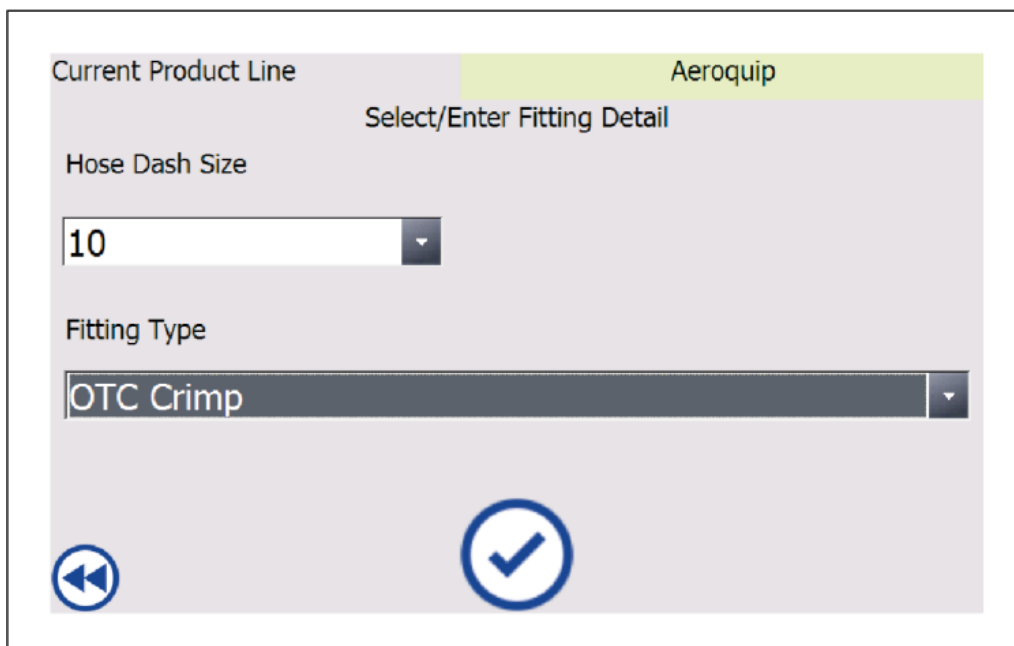


This screen is used to select the hose type (workpiece) from the list.

	Confirm the highlighted workpiece.
	Return to previous screen.



By making an entry in the Filter field, the workpiece list may be filtered according to a specific criterion.









In this screen, you may select the matching coupling to the hose type (workpiece) from the two lists:

- the nominal width is selected first;
- subsequently a coupling matching the nominal width is selected.

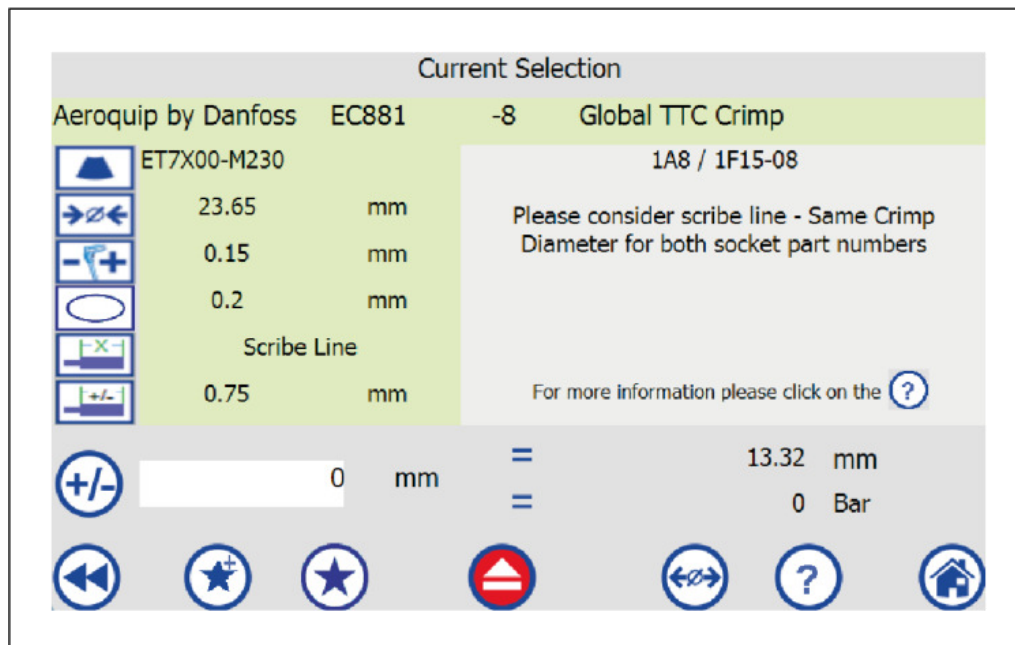
	Confirm the selected tool and continue in the next screen.
	Return to previous screen.








In this screen, the steps for exchanging the crimping dies are shown. For more details regarding the replacement of the crimping dies, please refer to the machine Operation Manual.

	<p>The quick die change system has to be used to change the crimping dies.</p>
 	<p>The die wrench has to be used to change the crimping dies.</p>
	<p>The crimping die set with the diameter shown here has to be used.</p>
	<p>Return to start screen.</p>
	<p>Return to previous screen.</p>

### 5.3 Verify and adjust settings



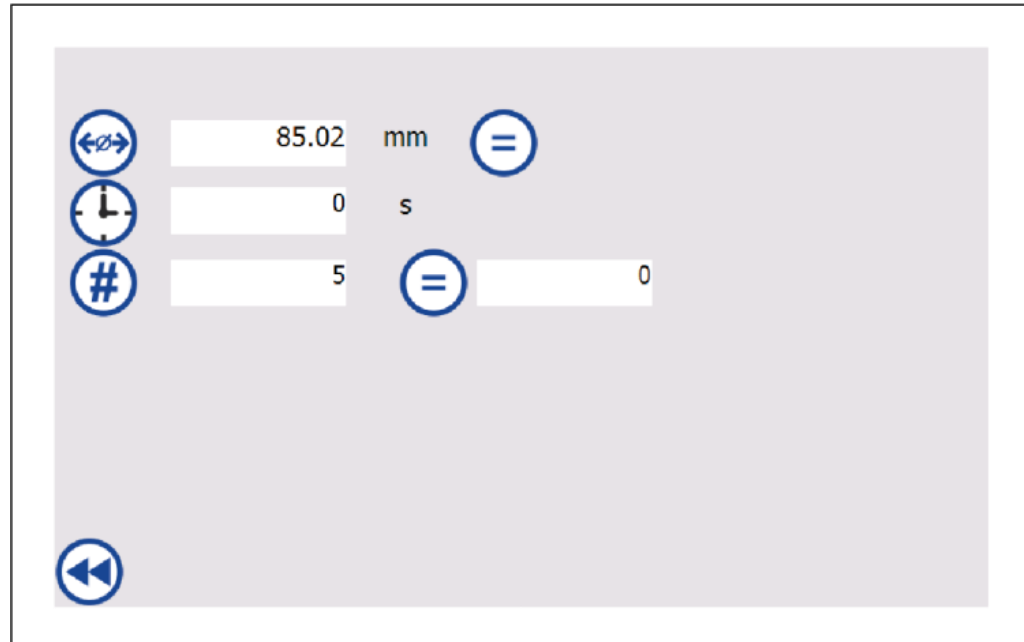
	Screen: Crimping die diameter
	Screen: Forming dimension diameter.
	Screen: Permissible tolerance of forming dimension diameter.
	Screen: Permissible ovality.
	Screen: Crimping field length.
	Screen: Crimping field length tolerance.
	Direct input of forming dimension via input field possible as an alternative.
	Display: current position of tool.
	Display: current value of forming pressure.
	Return to previous screen.
	Save current settings as favourites.
	Select settings from favourites.



	The tool automatically opens after the forming process.
	The tool does not automatically open after the forming process.
	Enter additional settings (see following screen).
	Help (only if available, otherwise logo)
	Back to selection of product range.








Favourites even remain unchanged if the data are reloaded from a USB storage medium.

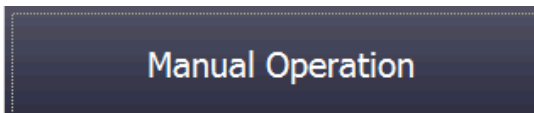
### Enter additional settings



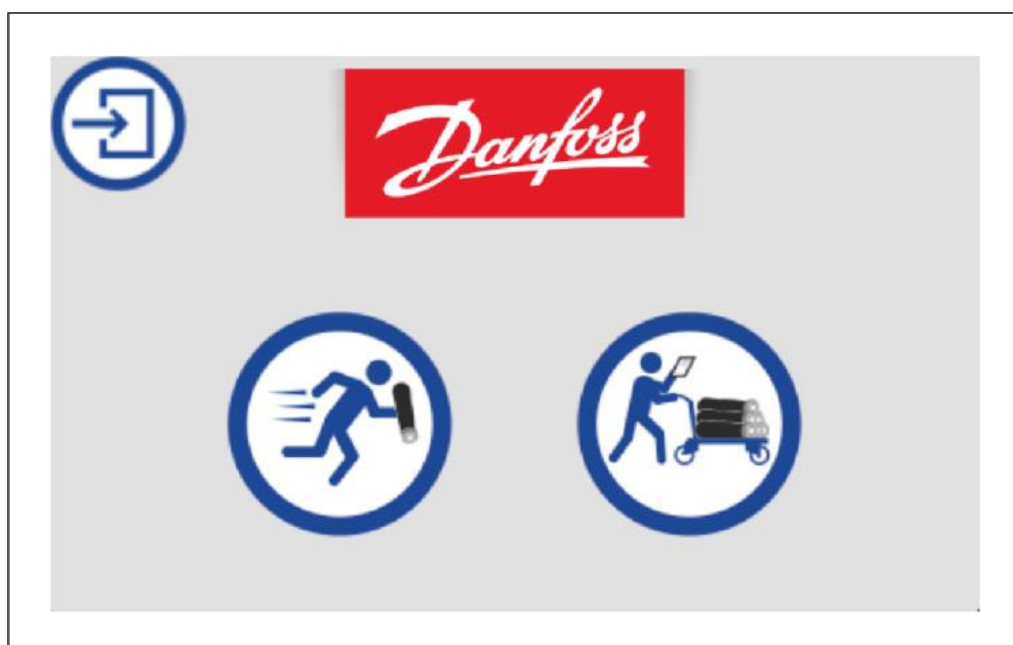
	Enter opening diameter.
	The current diameter at which the machine is set is accepted as opening diameter.

	<p>Only if automatic opening is active : Upon forming, the crimping dies remain on the workpiece until the machine opens them again (holding time).</p>
	<p>Pre-select the number of workpieces to be processed. If "0" is entered, a deliberate number of forming processes may be performed without a message appearing.</p>
	<p>Screen: Number of forming processes completed so far.</p>
	<p>Return to previous screen.</p>

## 6 Crimp without workpiece table



### 6.1 Start screen



The following control screen is opened by pressing the manual operation button:

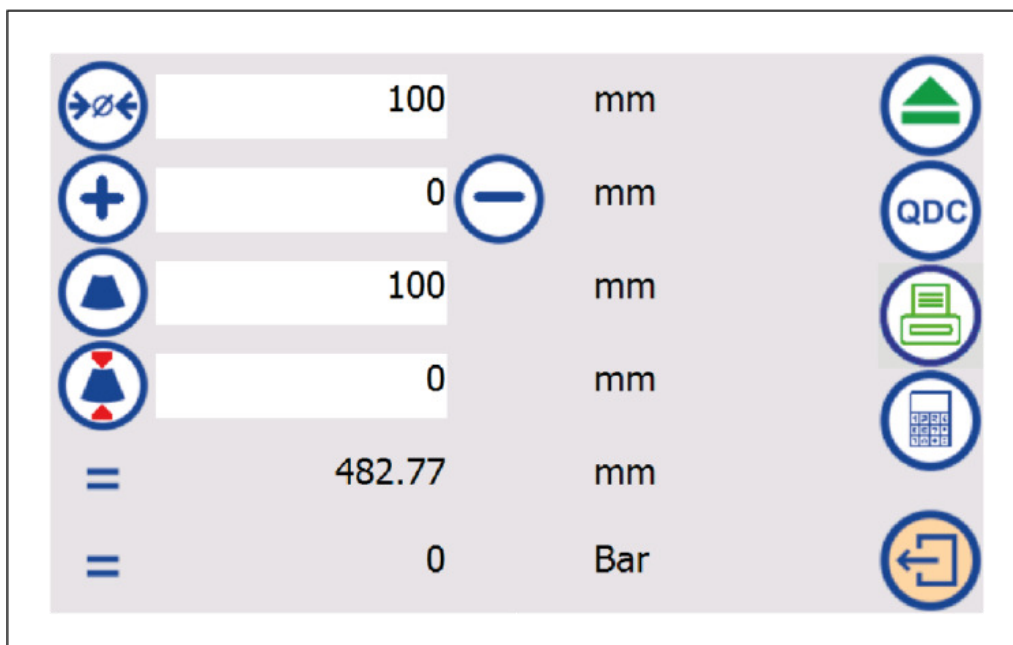
	Manual operation
	Semi-automatic operation
	Machine settings



The figures are described in more detail in the Sections below.



## 6.2 Manual operation

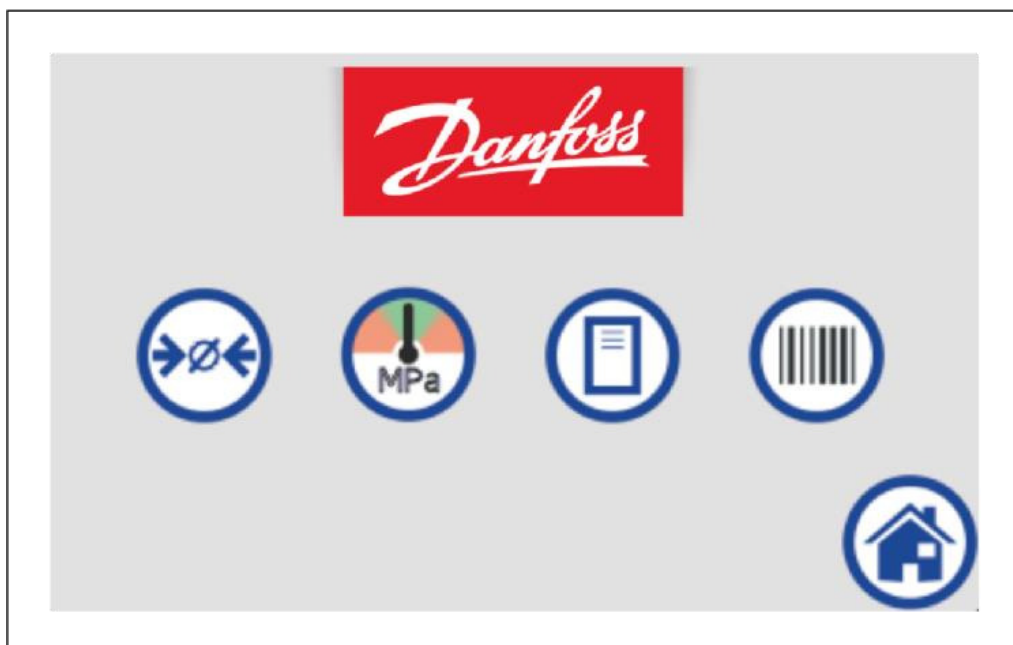


This screen is activated to specify the settings for a forming process in the “Manual operation” mode.

	<p>Enter forming dimension diameter. The forming dimension diameter is the diameter to which the tool is adjusted.</p> <p>If a new forming dimension is entered, the set crimping die diameter is adjusted automatically. The crimping die table is searched for the next possible crimping die, which is smaller or equal to the forming dimension + 0.6 mm.</p>
	<p>Adjust the set forming dimension diameter upwards (+) or downwards (-) by 0.1 mm or with a figure value. Direct input via input field possible as an alternative.</p>
	<p>Enter the crimping die diameter into the control.</p>

	<p>(Option) Crimping die thickness The symbol with the input field will only be displayed, if the use of special crimping dies is possible in the machine, and if the selected crimping dimension exceeds or is equal to the smallest possible special crimping die.</p>
	<p>Display: current value for the diameter.</p>
	<p>Display: current value for the forming pressure.</p>
	<p>The tool automatically opens after the forming process.</p>
	<p>The tool does not automatically open after the forming process.</p>
	<p>The screen for approaching the change position for crimping dies is opened. Please refer to "Change crimping dies" in Section 5.</p>
	<p>(Option) Label printer</p> <ul style="list-style-type: none"> <li>• Green display: automatic printing activated with every second forming cycle.</li> <li>• Red display: automatic printing deactivated.</li> <li>• Activate button: The screen for the printer settings is opened.</li> </ul> <p>See "UNIFLEX Label System" (Option) in Section 5.</p>
	<p>(Option) Industrial crimp calculator This is only displayed, if the machine is configured with this function and this function is activated in the machine settings. See "UNIFLEX Data Logging (UDL) and Industrial Crimp Calculator (ICC)" in Section 4.</p>
	<p>Return to previous screen.</p>

## 6.3 Semi-automatic operation

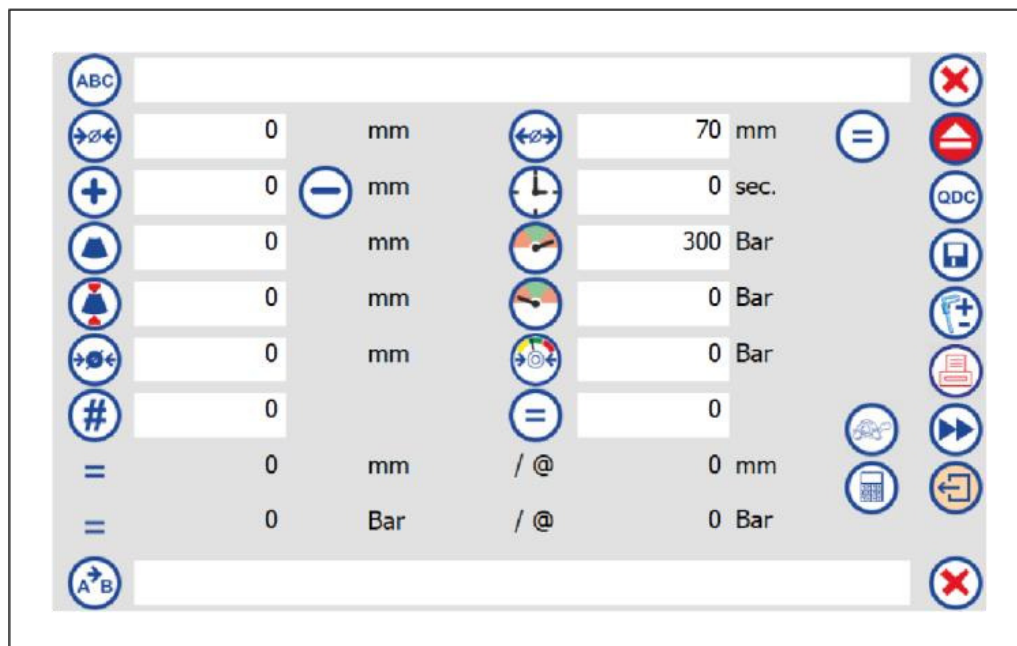
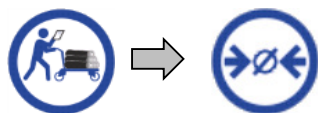


	Form to a diameter.
	Form to a pressure value (only PFM and PFC).
	Load data record from database.
	Read data using a scanner (option).
	Return to Start screen.

When the machine is switched from "Semi-automatic operation" to "Manual operation",









- forming to a diameter is activated;
- pressure / distance limits are deactivated;
- the holding time is set to "0"
- the opening diameter is set to the maximum opening diameter.

### 6.3.1 Form to a diameter






	Screen: Name of current data record. Touching: Load data record from database. The data record search function is case sensitive.
	Delete data record from input field.
	Enter forming dimension diameter. The forming dimension diameter is the diameter to which the tool is adjusted. If a new forming dimension is entered, the set crimping die diameter is adjusted automatically. The crimping die table is searched for the next possible crimping die, which is smaller or equal to the forming dimension +0.6 mm.
	Enter opening diameter.
	The current diameter at which the machine is set is accepted as opening diameter.

	<p>Adjust the set forming dimension diameter upwards (+) or downwards (-) by 0.1 mm or with a figure value. Direct input via input field possible as an alternative.</p>
	<p>Only if automatic opening is active : Upon forming, the crimping dies remain on the workpiece until the machine opens them again (holding time). Manual opening during the holding time is possible at any time by pressing the [↔] button. Holding time = time interval in which the plastic forming of the material is completed.</p> <p>Note, for PFC only: In order that the pressure is maintained and the crimping dies open automatically after the holding time, the [↔] button must remain activated for the entire holding time. If the [↔] button is released before the end of the holding time, the pressure will not be maintained, the crimping dies remain in their position and can only be opened manually by activating the [↔] button.</p>
	<p>Enter the crimping die diameter into the control.</p>
	<p>(Option) Crimping die thickness The symbol with the input field will only be displayed, if the use of special crimping dies is possible in the machine, and if the selected crimping dimension exceeds or is equal to the smallest possible special crimping die.</p>
	<p>(Only PFM and PFC) Data recordspecific customer setting: Pressure top limit not to be exceeded.</p>
	<p>(Only PFM and PFC) Data recordspecific customer setting: Pressure bottom limit to be achieved as a minimum in order to achieve a correct forming.</p>
	<p>Switches from closing to forming when the diameter of the pre-set unit is achieved. See below, "Set machine switch point"</p>
	<p>Switches from closing to forming when the pressure of the pre-set unit is achieved. See below, "Set machine switch point"</p>

	<p>Pre-select the number of workpieces to be processed.</p> <p>An appropriate message is displayed as soon as the selected number of workpieces is reached. If "0" is entered, a deliberate number of forming processes may be performed without a deactivation of the control.</p>
	<p>Screen: Number of forming processes completed so far. Each forming process completed with the preset forming dimension diameter is counted. If the preset number is reached, the machine stops.</p>
	<p>Display: current position of tool.</p>
	<p>Display: actual position of the tool when the target value is reached.</p> <p>Note: Various mechanisms in the machine act on compensating the spring back of the workpiece so that the target value is reached. The displayed value achieved may therefore deviate from the target value entered.</p>
	<p>Display: current value of forming pressure.</p>
	<p>Display: actual forming pressure when the target value is reached.</p> <p>Note: Various mechanisms in the machine act on compensating the spring back of the workpiece so that the target value is reached. The displayed value achieved may therefore deviate from the target value entered.</p>
	<p>(Option) Industrial crimp calculator This is only displayed, if the machine is configured with this function and this function is activated in the machine settings. See "UNIFLEX Data Logging (UDL) and Industrial Crimp Calculator (ICC)" in Section 4.</p>
	<p>Only for HM 220 C and HM 225 C. Switches from slow pressing (tortoise) to rapid pressing (rabbit) and vice-versa. Slow pressing (tortoise) = 100 % pressing force. Quick pressing (rabbit) = 45 % pressing force.</p>

	<p>The current data record automatically changes over to the next data record (subsequent data record).</p>
	<p>Delete subsequent data record from input field.</p>
	<p>The tool automatically opens after the forming process.</p>
	<p>The tool does not automatically open after the forming process.</p>
	<p>The screen for approaching the change position for crimping dies is opened. Please refer to "Change crimping dies" in Section 5.</p>
	<p>Save the displayed data under a name and add it to the database.</p> <p>Note: Do not use any special characters for designation to prevent errors.</p> <p>If a scanner is connected (optional), the data record may be activated via a barcode.</p>
	<p>(Option) Check forming result. See "Check with caliper" in Section 5.</p> <ul style="list-style-type: none"> <li>• Green display: automatic measuring after forming is activated.</li> <li>• Red display: automatic measuring after forming is deactivated.</li> </ul>
	<p>Proceed to the following screens:</p> <ol style="list-style-type: none"> <li>Settings <ul style="list-style-type: none"> <li>Hose operating pressure</li> <li>Counter</li> </ul> </li> </ol> <p>See "Operating pressure and counter settings", Section 4.</p> <p>(Option) PFC only:</p> <ol style="list-style-type: none"> <li>PID controller settings. See "Pre-set PID controller (PFC only)" in Section 4.</li> </ol>

 	<p>(Option) Label printer</p> <ul style="list-style-type: none"> <li>• Green display: automatic printing activated with every second forming cycle.</li> <li>• Red display: automatic printing deactivated.</li> <li>• Activate button: The screen for the printer settings is opened.</li> </ul> <p>See "UNIFLEX Label System" (Option) in Section 5.</p>
	<p>Return to previous screen.</p>

### Set machine switch

For machines with this option, the crimping dies are closed at two different speeds:

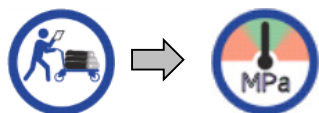
- (rapid) Closing
- (slow) Forming

The switch point is set by the distance (mm/inch) or the pressure (bar/psi/MPa). The value reached by the machine first will trigger the switch from (rapid) closing to (slow) forming.

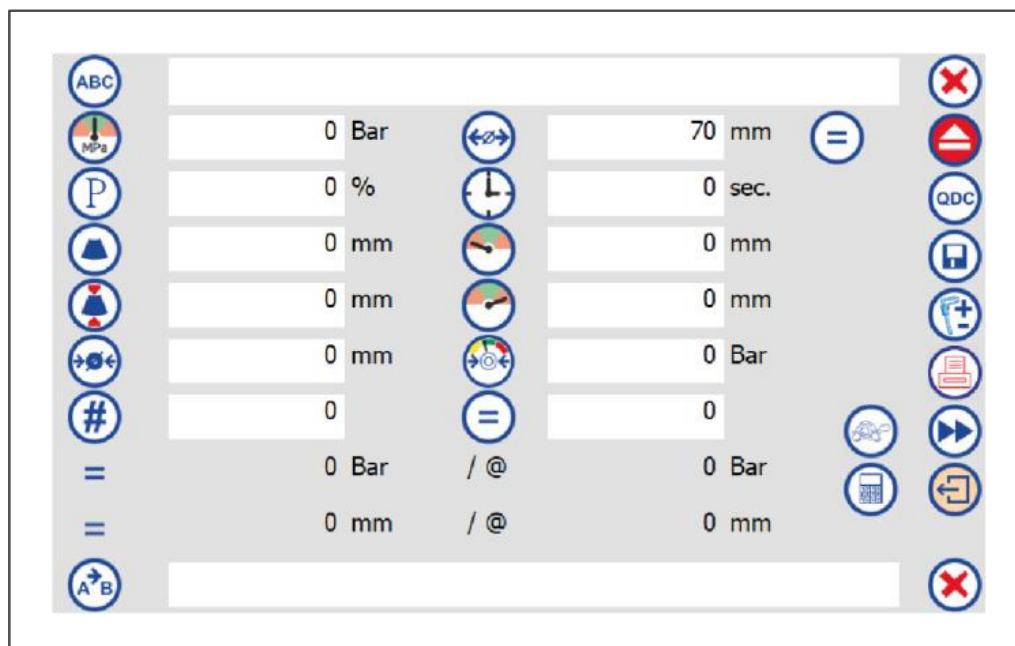


This setting has no effect in machines without this option.









### 6.3.2 Form to a pressure value (only PFM and PFC)



























	Screen: Name of current data record. Touching: Load data record from database. The data record search function is case sensitive.
	Delete data record from input field.
	Enter forming pressure to be operated by the machine.
	Enter opening diameter.
	The current diameter at which the machine is set is accepted as opening diameter.
	Proportional share of the PID controller(only PFC). Regulates the oil pressure/oil flow. These settings must only be performed by qualified personnel.

	<p>Only if automatic opening is active : Upon forming, the crimping dies remain on the workpiece until the machine opens them again (holding time). Manual opening during the holding time is possible at any time by pressing the [← →] button. Holding time = time interval in which the plastic forming of the material is completed.</p> <p>Note, for PFC only: In order that the pressure is maintained and the crimping dies open automatically after the holding time, the [→ ←] button must remain activated for the entire holding time. If the [→ ←] button is released before the end of the holding time, the pressure will not be maintained, the crimping dies remain in their position and can only be opened manually by activating the [← →] button.</p>
	<p>Enter the crimping die diameter into the control.</p>
	<p>(Option) Crimping die thickness The symbol with the input field will only be displayed, if the use of special crimping dies is possible in the machine, and if the selected crimping dimension exceeds or is equal to the smallest possible special crimping die.</p>
	<p>Travel distance top limit (referred to the die set) no to be exceeded.</p>
	<p>Travel distance bottom limit (referred to the die set) to be achieved as a minimum in order to achieve a correct forming.</p>
	<p>Switches from closing to forming if the diameter in mm is reached. See below, "Set machine switch point"</p>
	<p>Switches from closing to forming if the pressure in bar is reached. See below, "Set machine switch point"</p>

	<p>Pre-select the number of workpieces to be processed.</p> <p>If "0" is entered, a deliberate number of forming processes may be performed without a deactivation of the control.</p> <p>An appropriate message is displayed as soon as the selected number of workpieces is reached.</p>
	<p>Screen: Number of forming processes completed so far. Each forming process completed with the preset forming dimension diameter is counted.</p> <p>If the preset number is reached, the machine stops.</p>
	<p>Display: current position of tool.</p>
	<p>Display: actual position of the tool when the target value is reached.</p> <p>Note: Various mechanisms in the machine act on compensating the spring back of the workpiece so that the target value is reached. The- value achieved may therefore deviate from the target value entered.</p>
	<p>Display: current value for the forming pressure.</p>
	<p>Display: actual forming pressure when the target value is reached.</p> <p>Note: Various mechanisms in the machine act on compensating the spring back of the workpiece so that the target value is reached. The displayed value achieved may therefore deviate from the target value entered.</p>
	<p>(Option) Industrial crimp calculator</p> <p>This is only displayed, if the machine is configured with this function and this function is activated in the machine settings.</p> <p>See "UNIFLEX Data Logging (UDL) and Industrial Crimp Calculator (ICC)" in Section 4.</p>
	<p>Only for HM 220 and HM 225.</p> <p>Switches from slow pressing (tortoise) to rapid pressing (rabbit) and vice-versa.</p> <p>Slow pressing (tortoise) = 100 % pressing force.</p> <p>Quick pressing (hare) = 45 % pressing force.</p>

	<p>The current data record automatically changes over to the next data record (subsequent data record). An appropriate message is displayed.</p>
	<p>Delete subsequent data record from input field.</p>
	<p>The tool opens automatically after the forming process.</p>
	<p>The tool does not automatically open after the forming process.</p>
	<p>The screen for approaching the change position for crimping dies is opened. See “Crimping die replacement” in Section 5.</p>
	<p>Save the displayed data under a name and add it to the database.</p> <p>Note: Do not use any special characters for designation to prevent errors.</p> <p>If a scanner is connected (optional), the data record may be activated via a barcode.</p>
 	<p>(Option) Check forming result. See “Check with caliper” in Section 5.</p> <ul style="list-style-type: none"> <li>• Green display: automatic measuring after forming is activated.</li> <li>• Red display: automatic measuring after forming is deactivated.</li> </ul>
	<p>Proceed to the following screens:</p> <ol style="list-style-type: none"> <li>Settings <ul style="list-style-type: none"> <li>Hose operating pressure</li> <li>Counter</li> </ul> </li> </ol> <p>See “Operating pressure and counter settings”, Section 4.</p> <p>(Option) PFC only:</p> <ol style="list-style-type: none"> <li>PID controller settings. See “Pre-set PID controller (PFC only)” in Section 4.</li> </ol>

 	<p>(Option) Label printer</p> <ul style="list-style-type: none"> <li>• Green display: automatic printing activated with every second forming cycle.</li> <li>• Red display: automatic printing deactivated.</li> <li>• Activate button: The screen for the printer settings is opened.</li> </ul> <p>See "UNIFLEX Label System" (Option) in Section 5.</p>
	<p>Return to previous screen.</p>

### Set machine switch

For machines with this function, the crimping dies are closed at two different speeds:

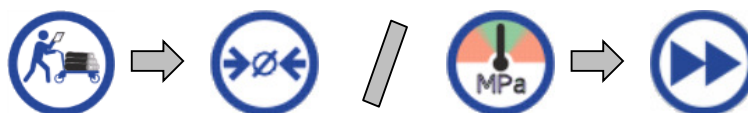
- (rapid) Closing
- (slow) Forming

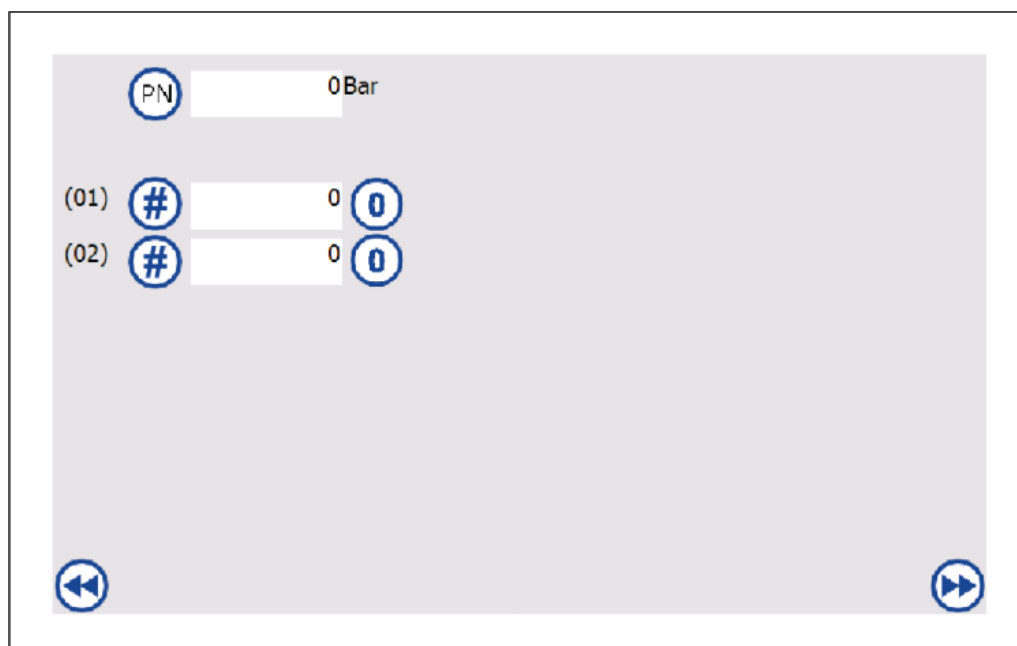
The switch point is set by the distance (mm/inch) or the pressure (bar/psi/MPa). The value reached by the machine first will trigger the switch from (rapid) closing to (slow) forming.



This setting has no effect in machines without this function.

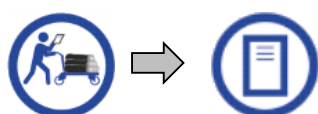
### 6.3.3 Operating pressure and counter settings

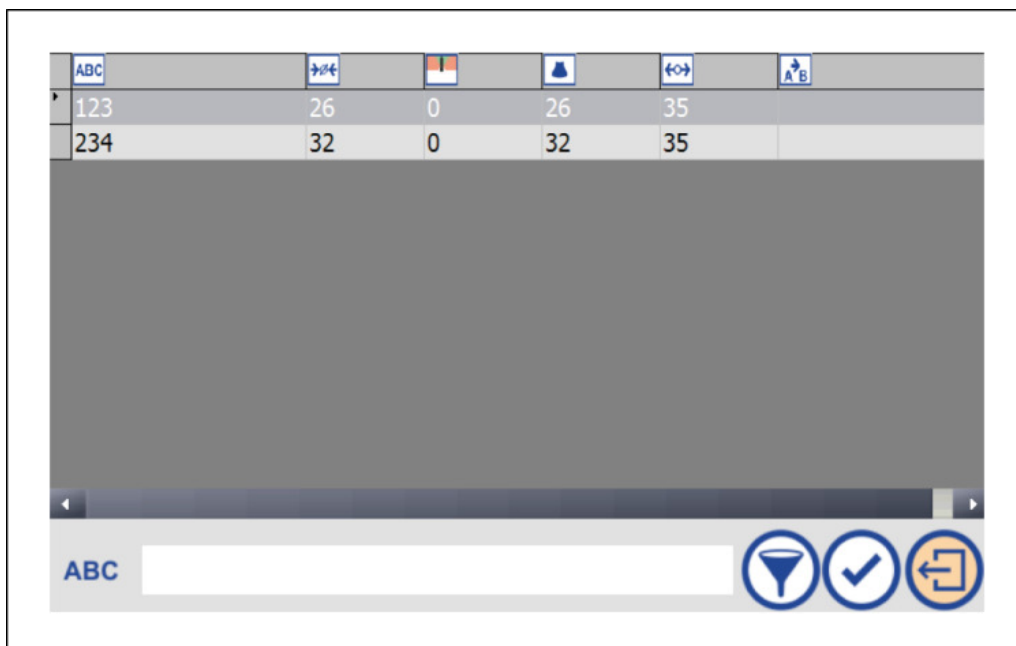




	Hose nominal pressure input. It is only required to input the value, if the value indicated is to be printed on a label (see “UNIFLEX LAGEL SYSTEM ULS” in Section 5).
	For recording unit quantities, for instance, two vacant unit counters are available. The unit counters may be used independently. The counter reading may be modified manually by entering a value in the input field.
	Reset counter reading to 0.
	Return to previous screen.
	(Option) PFC only: PID controller settings.

### 6.3.4 Load data record from database.

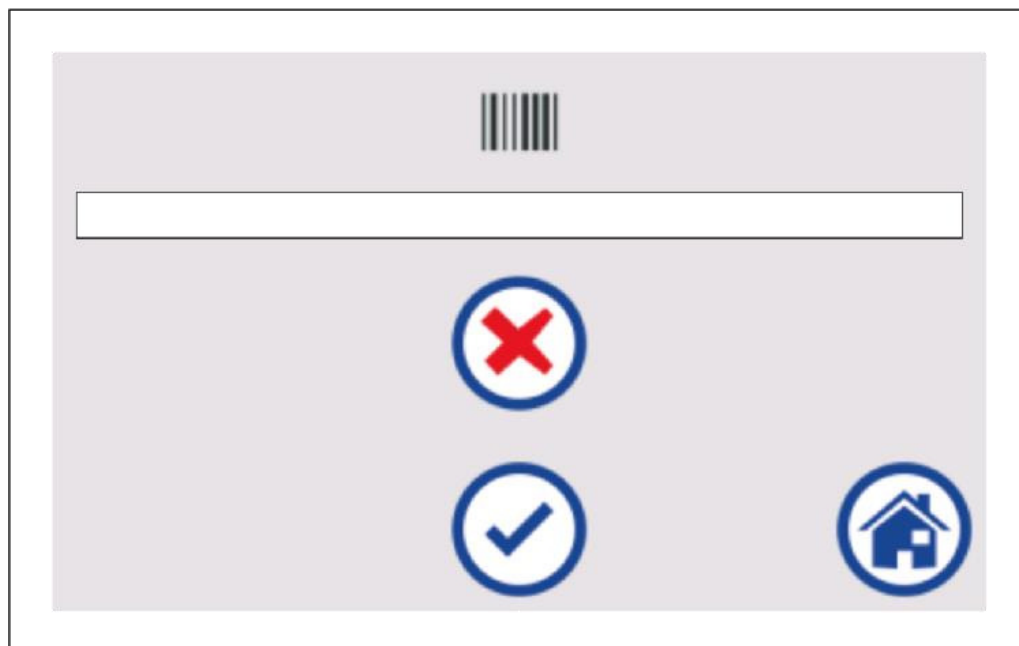
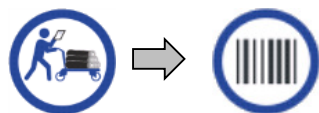




The control panel shows the database as a list of data records including names and forming data. The requested data record is selected by a touch and is then highlighted grey.

	Name of data record
	Forming dimension diameter
	Forming pressure
	Crimping die diameter
	Opening diameter
	Next data record
	Filter data records according to the character string entered.
	Accept selected data record and change over to the production screen.
	Return to previous screen without accepting the selected data record.

### 6.3.5 Load data record using a scanner (option)



Scan the barcode using the scanner, or enter the barcode clear text manually. The scanned barcode is interpreted as the name of a data record.

By accepting the scanned code, the data record table is searched for the appropriate name. If a data record with the same name is found, the related settings are loaded and the relevant screen for starting production is displayed. If the name is not found, an error message is displayed.

	Delete scanned data.
	Accept scanned data and change over to the production screen.
	Return to previous screen without accepting the scanned data.



The codes processed by the scanner can be taken from the description enclosed to the scanner.



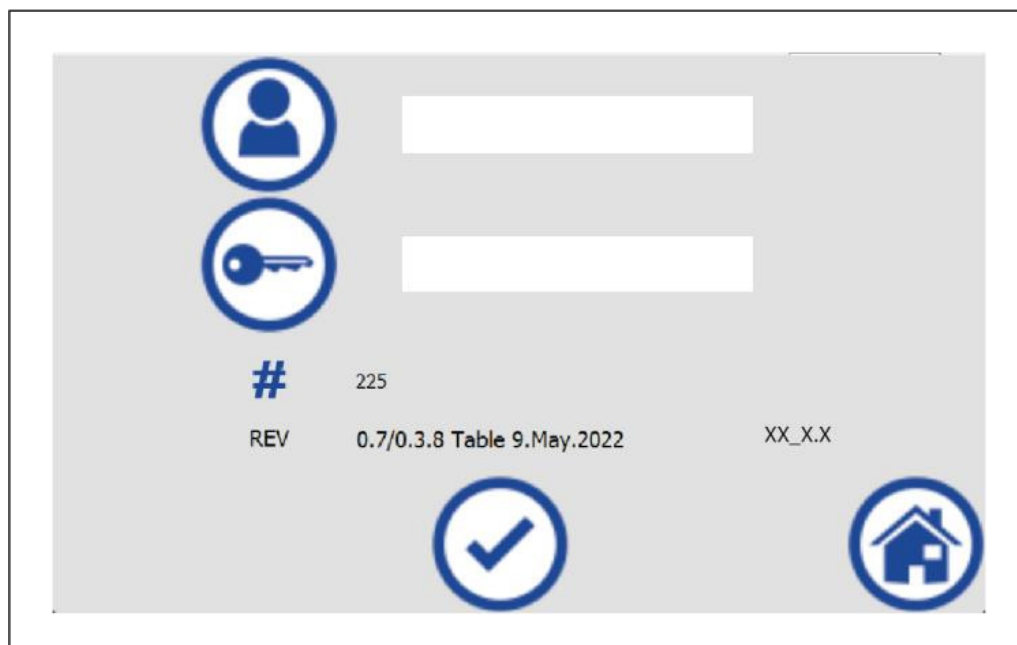






## 7 Control settings



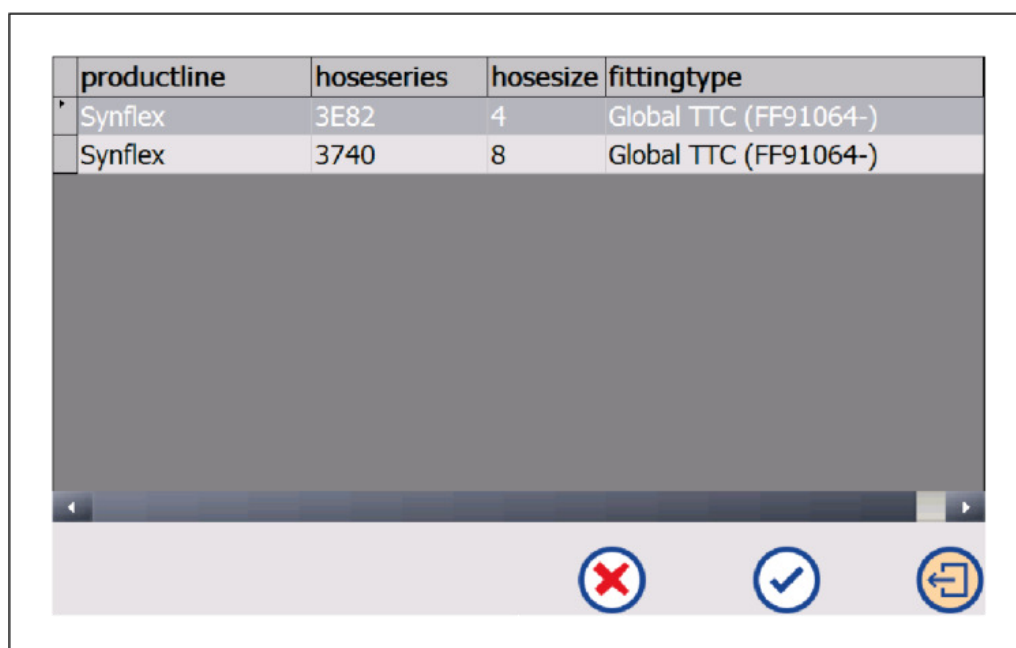
The machine settings area is password protected. After the user has logged in, all screens may be opened one after the other.

### 7.1 User log in






	Enter user name. UNIFLEX default: user
	Enter password. UNIFLEX default: user
#	Screen: Total number
REV	Screen: Software version
xx_x.x	Screen: Active control panel
	Log in user and change to the first machine settings screen (database).
	Return to Start screen.

## 7.2 Data base



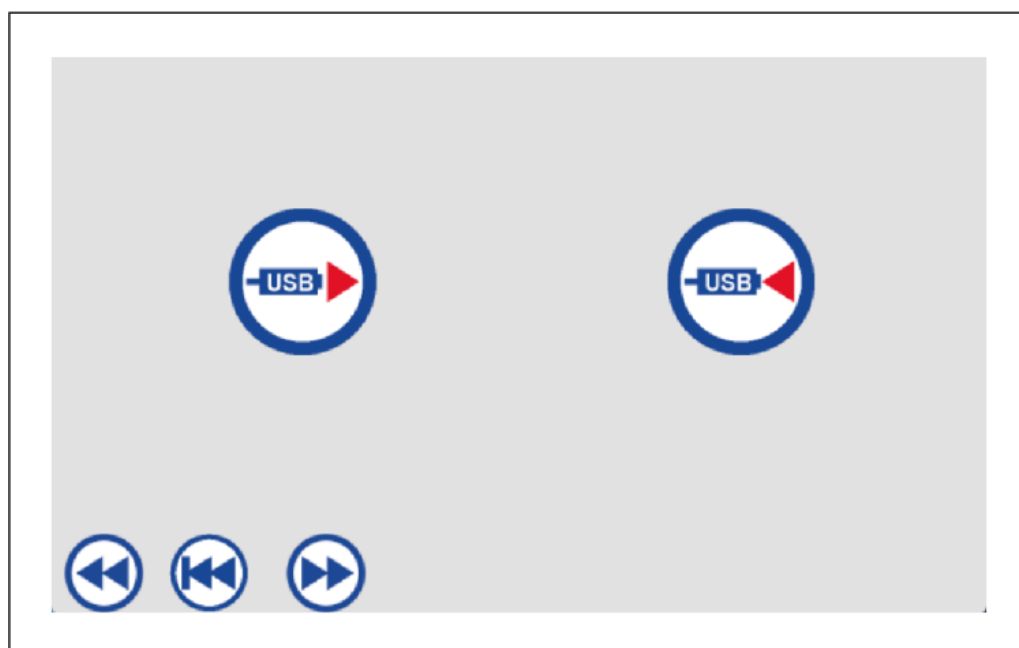
The control panel shows the database as a list of data records including names and forming data. The requested data record is selected by a touch and is then highlighted grey.

	Delete selected data record from database.
	Confirm the selected data and continue in the next screen.
	Return to Start screen. The user is logged off automatically.



### 7.3 Data management with a USB storage medium



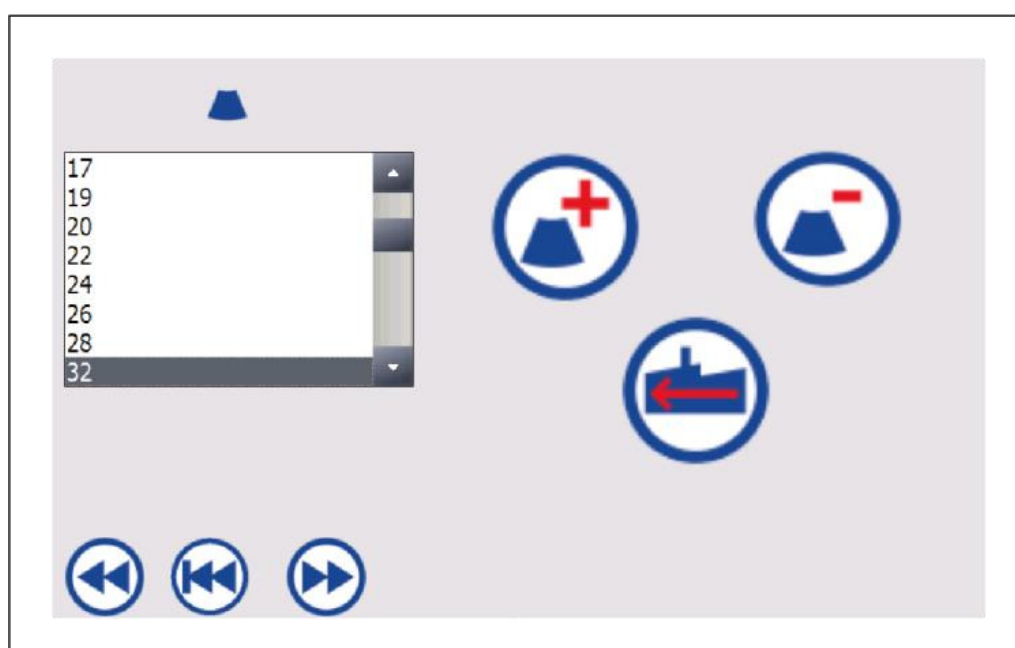
The USB socket is located on the back side of the control console (to be used for storage media certified by UNIFLEX only).








	Load data from an USB storage medium into the control.
	Load data from the control onto the USB storage
	The data upload from USB storage medium was successful.
	The data upload from USB storage medium was not successful, see error message.



	Return to previous screen.
	Proceed to next screen.

## 7.4 Crimping die editor



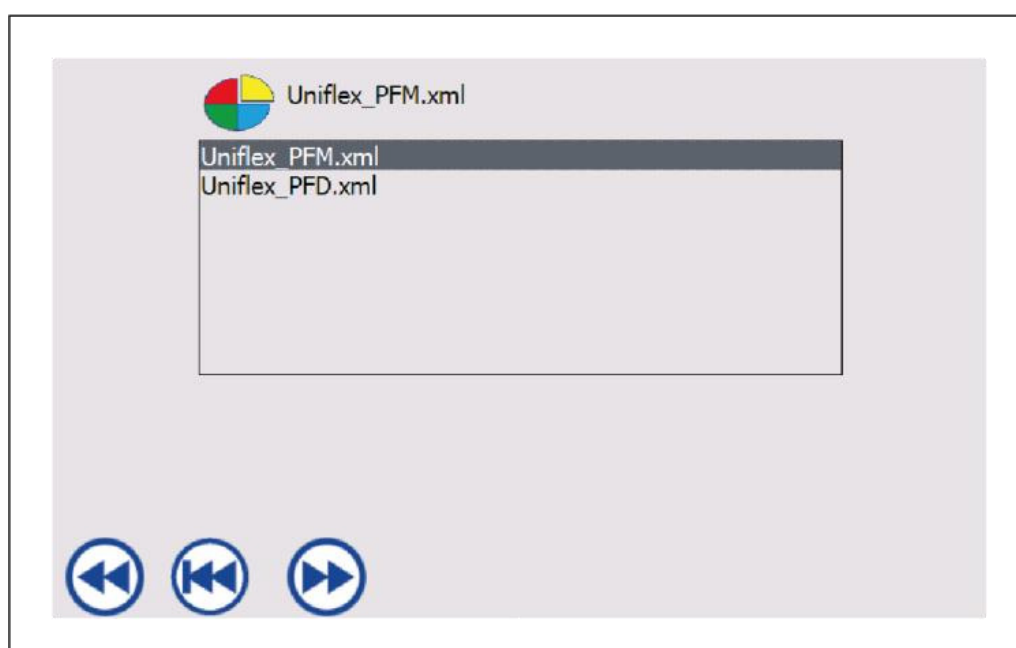
In this screen, crimping die data records may be adjusted, deleted or entered.




	List of saved crimping die data records.
	Add crimping die data record. The new crimping die data record is automatically sorted numerically in the list.
	Delete crimping die data record.
	Restore default settings.
	Return to previous screen.

	Return to first machine settings screen (database).
	Proceed to next screen.



In the crimping die editor, all crimping die data records of the manufacturer are included when the machine is delivered.



	Return to previous screen.
	Return to first machine settings screen (database).
	Proceed to next screen.

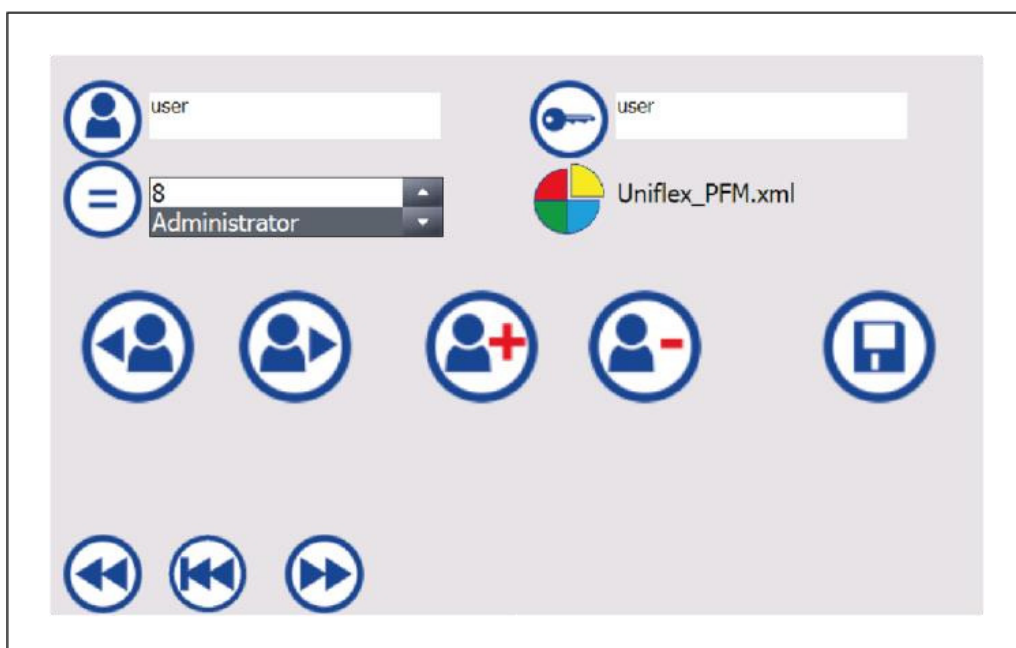


Tap the desired user interface in order to select it.











No or other surfaces may be selected according to the specific layout.

## 7.5 User administration








In this screen, users may be created or deleted; in addition, passwords or the user level may be modified.

	<p>User name The user name consists of an alphanumeric string without spaces. UNIFLEX default: user</p>
	<p>Password UNIFLEX default: user</p>
	<p>User level: 0 Operator ... Administrator (= fitter)</p>
	<p>Shows the user interface assigned to the respective user.</p>

	Selects the previous user, if any.
	Selects the next user, if any.
	Add user.
	Delete user.
	Save user data.
	Return to previous screen.
	Return to first machine settings screen (database).
	Proceed to next screen.

### Creating a user

1.  Select "Add user".
  2.  Enter user name.
  3.  Enter password.
  4.  Select user level.
  5.  Save user data.
- Successful saving is indicated by an appropriate message.

### Delete user

1.   Select user.
2.  Delete user

### User names

User names and the associated passwords are created or deleted by the operator. The user name currently logged on cannot be deleted. If



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the current user name is to be deleted, it is necessary to log on another user first.

In the factory, the standard user “user” is installed as an “administrator”. The standard user can only be deleted if there is at least one other user name available on the administrator level.

The number of users is only restricted by the storage space of the control.

### **User levels**

The user levels can be used to assign user names with different rights with regard to machine operation. In total, up to ten different user levels can be set up. The user level “administrator” cannot be deleted or changed.

At the factory, one administrator level is set up. The machine settings can only be called up by user names of the administrator level.

In the factory settings, the user levels “0 – 8” and “operator” have the same rights. These user levels are able to operate the full scope of functions on the machine but are not able to call up the machine settings.

The rights of the user levels can be programmed individually for an extra fee. Contact the manufacturer for this purpose.






The Administrator password may be required for repairs. If login data are no longer available, the user administration must be restored by the manufacturer subject to a charge.

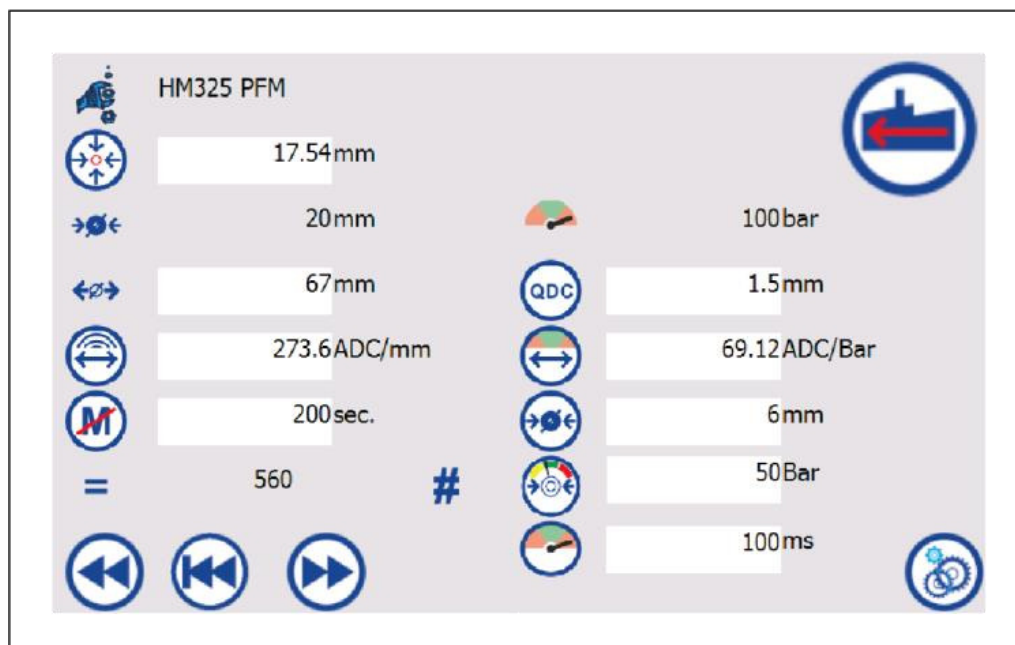
## 7.5.1 Language














The currently set language is shown at the top. Select the appropriate language by touching the flag (1).

	Return to previous screen.
	Return to first machine settings screen (database).
	Proceed to next screen.

## 7.6 Machine settings

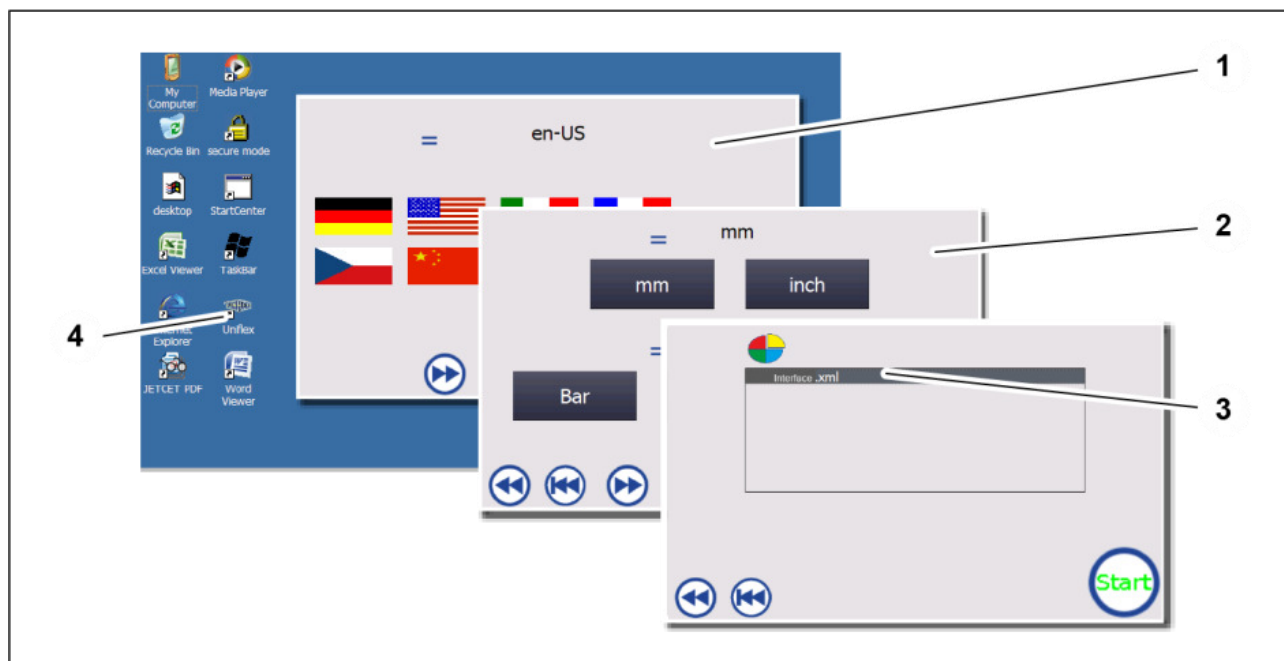





	Screen: Machine type
	Preset zero point and/or reference point of machine.
	Screen: Permissible range before zero point is reached, as from where the machine may build up force without causing damage to the bearing plates. The dimension depends on the geometry of the tool and cannot be changed.
	Screen: Outside the permissible range, the machine may build up a maximum pressure of x bar without causing the machine's shutdown. This value cannot be changed.
	Maximum travel distance of the machine in millimetres.
	Definition of change position for crimping dies.
	Analog digital converter Converts the position encoder length in 0 – 27648 scale marks.

	Analog digital converter Converts 0 - 400 bar in 0 – 27648 scale marks.
	The machine motor is switched off after expiry of the period set here.
	Diameter pre-setting: When a new forming diameter is entered, the diameter entered here is automatically added to the forming diameter and accepted as switch point.
	Screen: Number of forming processes up to this time.
	Pressure setting: When a new forming diameter is entered, the diameter entered here is automatically set for the forming pressure.
	(PFM and PFC only) Time in milliseconds after switchover during which the signal from the pressure sensor is ignored (damping). This is intended to mask out pressure peaks which may result by the first material contact.
	Return to previous screen.
	Return to first machine settings screen (database).
	Proceed to next screen.
	Restore default settings.
	To the operating system. Closes the control software.

## 8 Instructions for action

### 8.1 Start-up control

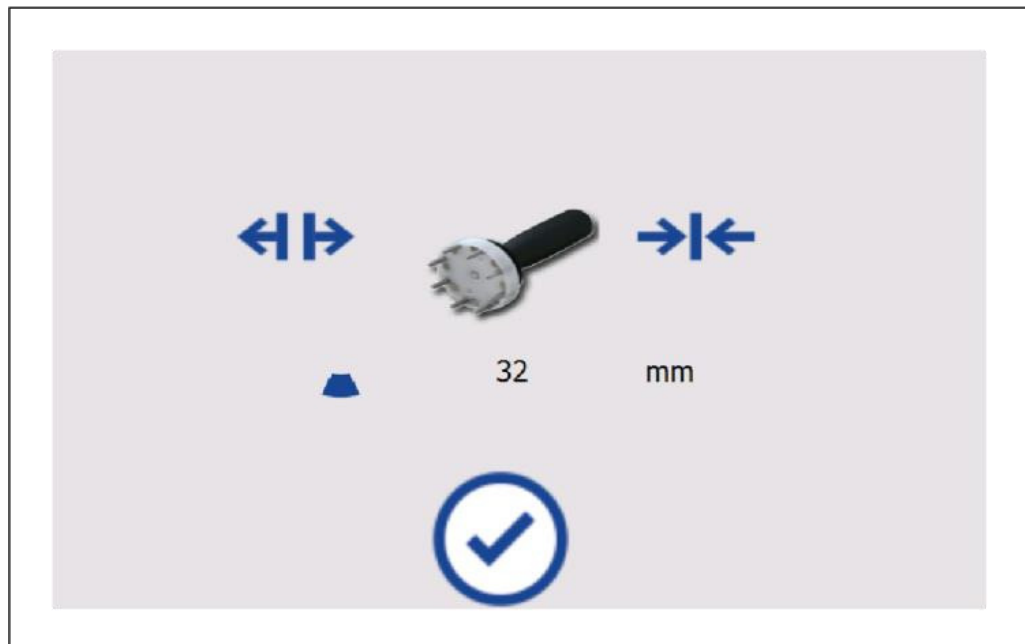
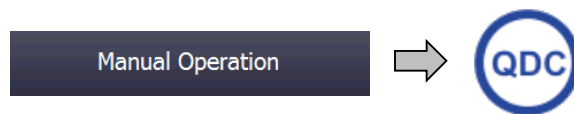


1. Start the machine.  
The control operating system is started.
2. If the control CONTROL C.2 does not start automatically, double click on *Uniflex* (4) in order to switch to the CONTROL C.2.  
The Uniflex logo is shown before the first machine settings screen opens (database).
3. Set requested language (1).
4.  Proceed to next screen.
5. Set requested units (2).
6.  Proceed to next screen.
7. Select the appropriate control version by touching an \*.xml-file (3).
8.  Confirm entries.  
The Uniflex logo is shown before the control start screen opens.



The Windows settings in *Regional Settings* must not be changed since otherwise the value tables are interpreted incorrectly.

## 8.2 Changing the crimping dies



In this screen, the steps for exchanging the crimping dies are shown.

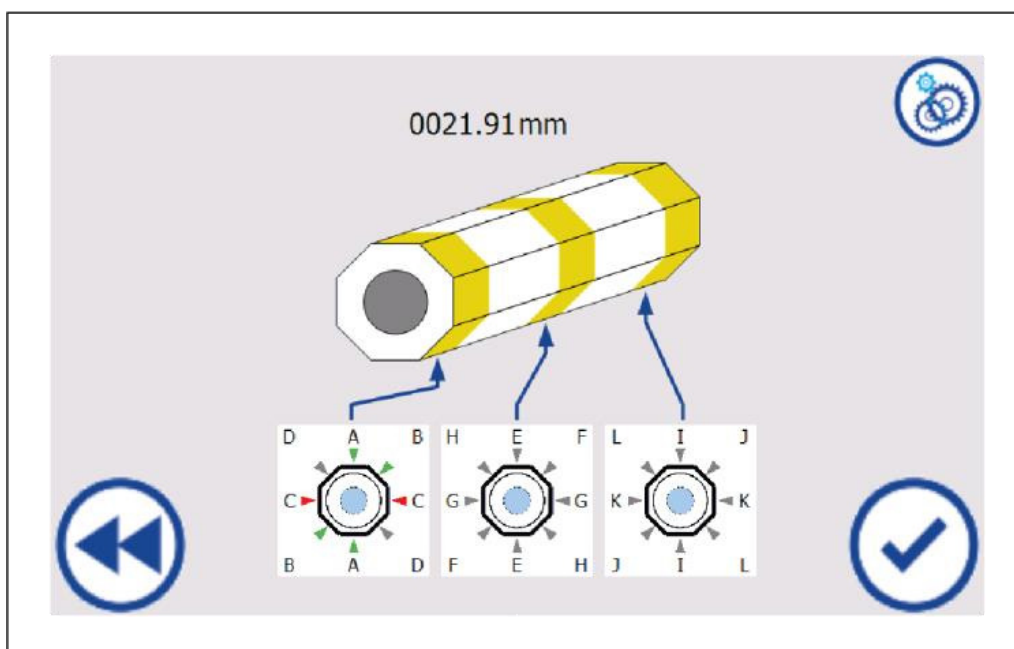
	<p>The quick die change system has to be used to change the crimping dies.</p>
	<p>The die wrench has to be used to change the crimping dies.</p>
	<p>The crimping die set with the diameter shown here has to be used.</p>
	<p>Return to start screen.</p>



Details of how to change the crimping dies can be found in the Operation Manual of the respective machine.

### 8.3 Check with calliper (Option)

Manual Operation



The forming result including a freely selectable tolerance range may be checked by using a calliper. For this purpose, measure the work-piece at the point indicated by the triangle.

<p>0021.91 mm</p>	<p>Current calliper value.</p> <p>If the message “mm/inch? mm” is displaced, the pre-set unit of the calliper does not comply with the pre-set unit of the machine. Correct the measuring unit of the calliper or the machine.</p> <p>If the message “Error mm” is displayed, no calliper is identified, or the communication between the calliper and the control is disrupted.</p>
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	<p>Calliper settings. See “Pre-set calliper” in Section 5.</p>
	<p>Displays the relevant measuring points (front, centre, back). The recorded values are also saved in the UDL under their relevant letter (A - L).</p> <p>Definition of the triangles:</p> <ul style="list-style-type: none"> <li>• Grey: outstanding measurement.</li> <li>• Red: point to be measured.</li> <li>• Green: point already measured.</li> </ul>
	<p>Back to forming parameter screen.</p>
<p>or foot switch (1)</p>	<p>Accept measurement and proceed to next measuring point. Continue with measuring result screen after the last measurement.</p>

The measured result is shown in the last screen:

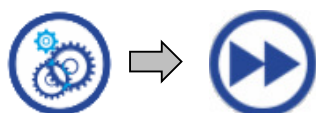
	<p>22mm</p>		<p>0mm</p>
	<p>+ 0.00mm - 0.00mm</p>	<p>=</p>	<p>21.91mm</p>
	<p>0.00mm</p>	<p>=</p>	<p>0.00mm</p>
	<p>0.00mm</p>	<p>=</p>	<p>0.00mm</p>

	<p>Forming dimension diameter (preset dimension).</p>
	<p>Set correction value of forming dimension diameter.</p>



	<p>Measuring result of the diameter as the mean value of the individually measured values. Rules:</p> <ul style="list-style-type: none"> <li>• Green display: the workpiece is within the permissible tolerance</li> <li>• Red display: the workpiece is not within the permissible tolerance</li> </ul> <p>The pre-set tolerance value is indicated behind the symbol.</p>
	<p>Measuring result of the ovality as the mean value of the individually measured values. Rules:</p> <ul style="list-style-type: none"> <li>• Green display: the workpiece is within the permissible tolerance</li> <li>• Red display: the workpiece is not within the permissible tolerance</li> <li>• Grey display: the measurements are not sufficient (e.g. because only one measurement, each, was made in the front, centre and back).</li> </ul> <p>The pre-set tolerance value is indicated behind the symbol.</p>
	<p>Measuring result of the conicity as the mean value of the individually measured values. Rules:</p> <ul style="list-style-type: none"> <li>• Green display: the workpiece is within the permissible tolerance</li> <li>• Red display: the workpiece is not within the permissible tolerance</li> <li>• Grey display: the measurements are not sufficient (e.g. because only one measurement, each, was made in the front, centre and back).</li> </ul> <p>The pre-set tolerance value is indicated behind the symbol.</p>
	<p>Back to measurement screen to repeat the measurement.</p>
	<p>Accept measurement and return to start screen.</p>

## 8.4 Calibration









During calibration, the zero point and the crimping tool inclination are set. This is required i.e. if the slide bearing plates have been changed.



The "Calibration" screen is found in the machine settings and is password protected.

The process is shown in this screen and the next screen:

	<p>Select the UNIFLEX calibration mandrel with the indicated number.</p>
	<p>Insert crimping dies with the indicated size.</p>
	<p>Position the calibration mandrel thin end in the crimping tool and press the [→ ←] button. The machine reaches the calibration pressure.</p>

	<p>Position the calibration mandrel thick end in the crimping tool and press the [→ ←] button. The machine reaches the calibration pressure.</p>
	<p>Display: calibrated zero point.</p>
	<p>Remove calibration mandrel:</p> <ul style="list-style-type: none"> <li>• Hold calibration mandrel and</li> <li>• Open tool with [← →] button.</li> </ul>
	<p>Calibration was successful.</p>
	<p>Calibration was not successful, repeat calibration process.</p>
	<p>Accept calibration and return to first machine settings screen (database).</p>



The machine may also be calibrated by directly entering the zero point. See “Machine settings”, Section 4.

## 9 Error messages

### 9.1 Error message “Oil filter contaminated”

If an oil filter is used in the machine (depends on the machine type) and this filter is contaminated, an error message is displayed.

1. Replace oil filter in accordance with the instructions given in the Operation Manual of the machine.
2. Acknowledge error message by pressing the [↩] button and the OK button in the message window.

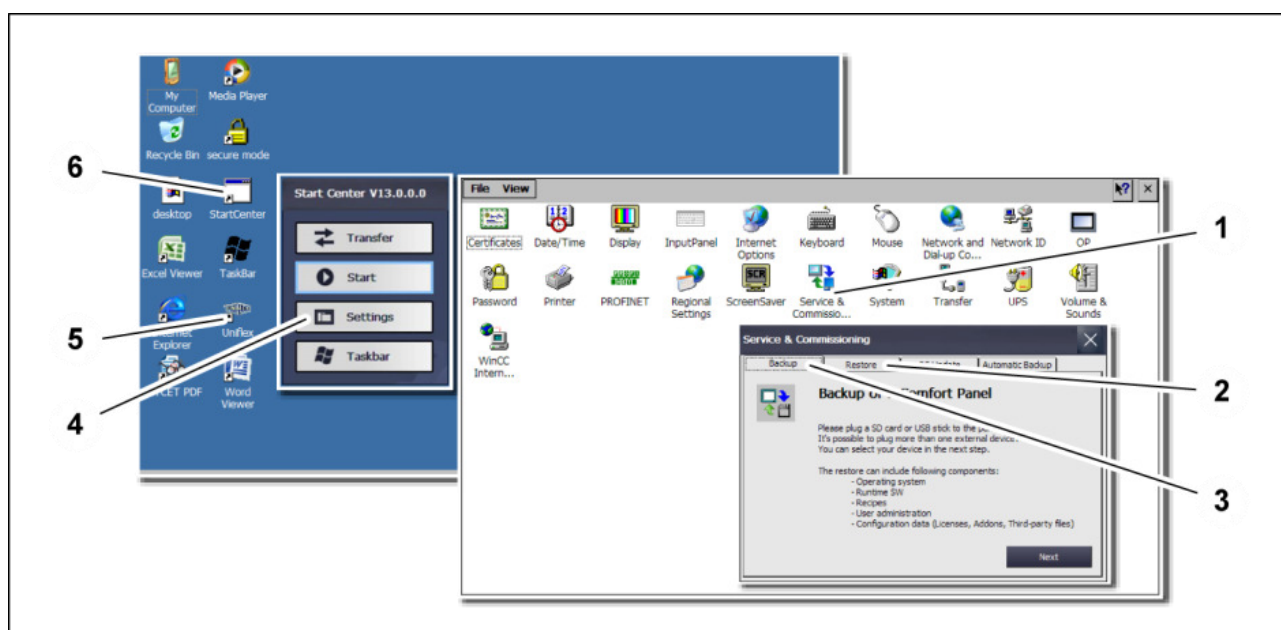


The error message may also appear in the event of a low ambient temperature. Operate the machine in the idle mode for several minutes. If the message occurs again after restart, replace the oil filter.



If the error message is acknowledged without having replaced the oil filter before, the message will be displayed again when the motor is restarted.

## 9.2 Backup and restore CONTROL C.2



In the machine settings (password-protected area), you can switch to the operating system via the *To the operating system* button.

### Backup CONTROL C.2

1. Start *StartCenter* (6) by a double click.  
The screen "Transfer" is opened, and the transfer is started.
2. Terminate transfer by pressing *Cancel*.
3. Activate the *Settings* button (4).
4. Start *Service & Commissioning* (1) by a double click.
5. Connect an empty USB storage medium (FAT32 formatted) to the USB port of the control panel.
6. Select the *Backup* tab (3).
7. Confirm with *Next*.

8. Select *Storage Card USB* or *Refresh* to search for the USB storage medium again.
9. Confirm with *Next*.
10. Select *Backup*



It will only be possible to complete an error-free backup when *Complete backup with licenses* is selected.

11. Select *complete backup with licenses*
12. Confirm with *Create*.  
The backup is created. This process can take some time.
13. Confirm the message *Backup operation successfully completed* with *OK*.
14. Remove USB storage medium.
15. Restart the machine control by switching it off and on again at the main switch.

## Restore CONTROL C.2

1. Start *StartCenter* (6) by a double click.  
The screen "Transfer" is opened, and the transfer is started.
2. Terminate transfer by pressing *Cancel*.
3. Activate the *Settings* button (4).
4. Start *Service & Commissioning* (1) by a double click.
5. Connect the USB storage medium containing the backup file on the back side of the control console.
6. Select the *Restore* tab (2).
7. Press the *Next* button.
8. Select *Storage Card USB*
9. Confirm with *Next*.
10. Select the requested backup file *\*.brf* on the USB storage medium
11. Select *Restore*
12. Confirm with *Yes*.  
The restore process begins. This process can take some time.
13. Wait until the message *Restore operation successfully completed* appears.
14. Remove USB storage medium.

15. Confirm the message *Restore operation successfully completed* with *OK*.
16. The machine control is restarted automatically and is then ready for operation again.

## 10 Annex



Individual machine/unit components may deviate in their features. Please indicate the serial number of the machine for spare part orders.

### 10.1 Accessories (retrofitable)

Accessories	Part code
Double foot switch	PS.2 Double
Calliper including cable and foot sensor	Calliper CtrlC 3 Inch
Calliper including cable and foot sensor	Calliper CtrlC 4 Inch
Calibration mandrel in set with PB (recommended for machine calibration)	Calb CtrlC
Pressure Force Monitoring	PFM
UTS Software + Notebook	UTS CtrlC.2
bar code scanner	BCR CtrlC
ULS label printer with connection cable and software package	ULS.2_C
ULS ribbon	888.469
ULS label roll, green	507.1_CP Banderole 138 mm 507.1 XL_CP Banderole 292 mm
ULS label roll, yellow	507.2_CP Banderole 138 mm 507.2 XL_CP Banderole 292 mm
ULS label roll, blue	507.3_CP Banderole 138 mm 507.3 XL_CP Banderole 292 mm
ULS label roll, brown	507.4_CP Banderole 138 mm 507.4 XL_CP Banderole 292 mm
ULS label roll, purple	507.5_CP Banderole 138 mm 507.5 XL_CP Banderole 292 mm

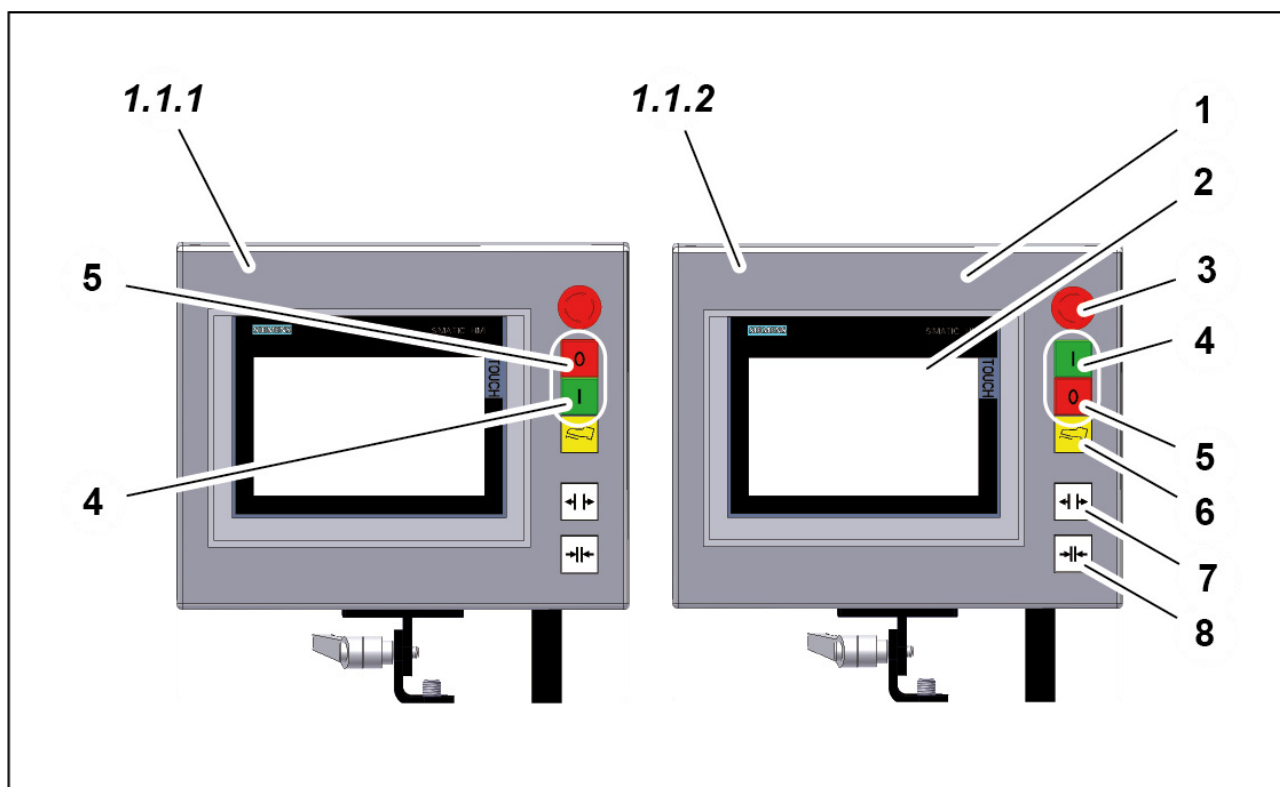


Only use original ULS coloured tape.



Please contact our Sales department for ordering accessories.

## 10.2 Spare parts list



### Version 807.600

Position	Number	Article number	Designation
1	1	807.710	Control panel 800 mm C.2 with memory card
2	1	807.374	Uniflex Touch Panel
3	1	807.066	Emergency stop unit
4	1	800.061	"Motor Start" button
5	1	800.060	"Motor Stop" button
6	1	807.068	Button: Foot pedal switching
7	1	800.063	"Open" button
8	1	800.062	"Close" button

### Version 807.700

Position	Number	Article number	Designation
1	1	807.710	Control panel 800 mm C.2 with memory card
2	1	807.374	Uniflex Touch Panel

Position	Number	Article number	Designation
3	1	807.067	Emergency-stop button, complete, as from approx. 10/2016 (date of production)
4	1	800.061	“Motor Start” button
5	1	800.060	“Motor Stop” button
6	1	807.068	Button: Foot pedal switching
7	1	800.063	“Open” button
8	1	800.062	“Close” button



Standard cable length for control panel = 800 mm.  
Other cable lengths available: 1800 mm and 5000 mm.



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