

# ForceMaster 9110



**3 steps to  
successful installation**

This quick start guide will give you the most important information that you need to start operating your system quickly and easily. It does not replace the comprehensive operating manual for the components used.

For more information  
please contact your  
local Representation:

If, contrary to expectations, you have problems with the operation of the instrument, the responsible product engineer is looking forward to supporting you under **telephone no. +49-7224-645-0** or please refer to the telephone extension given on the delivery note. Please feel free to send us an e-mail with your questions.

**ONLY in case of any repair matters**

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## SHORT OPERATING INSTRUCTION

### ForceMaster Serie 9110

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## Good parts without the stress ?

### Just 3 steps to successful installation of press-insertion monitoring on manual presses

You want to perform force-displacement monitoring on a newly purchased manual press or an existing manual press (with fitted press tool) so that you can implement optimum quality control to produce 100% good parts.

The aim of this quick instruction guide is to help you get the equipment into operation for the first time easily and efficiently by providing an example on an existing manual press (relevant to practically all standard makes).

You have purchased the following components:

- ▶ ForceMaster Series 9110 → Process monitoring
- ▶ Press load cell series 8552
- ▶ Displacement sensor series 8712/8713

and accessories

- ▶ Mounting kit including carrier model 5501-Z004

## **Step 1: Mounting the load cell on the manual press**

Slide the carrier (supplied in mounting kit 5501-Z004) over the load cell from the peg end and clamp it carefully on the upper edge of the load cell (figure 1.1); maximum tightening torque 3 Nm.



Figure 1.1: Fitting the carrier on the load cell

If mounting on an existing press with prefitted press tool, the press tool must be removed. Adjust the press head upwards by an amount equal to the height of the load cell (depends on measurement range) (Figure 1.2). Insert the load cell in the press ram and fix it in place using the grub screw in the ram. Then insert your press tool into the load cell from below (Figure 1.3), and again fix this in place using the grub screw in the sensor.

Only use the peg of the sensor for centering and fastening, not for applying force. The pressing force must only be applied through the annular surface around the peg or around the socket. The same applies to the seating of the tool in the sensor. Here again, the annular surfaces must touch each other. The peg of the tool must not run into the hole of the sensor. Never select a peg length on the tool that is longer than the peg length of the sensor.

Take care over how the cable to the load cell is laid, and provide a big enough loop so that an unacceptably high bending moment does not act continuously on the cable inlet to the sensor housing.

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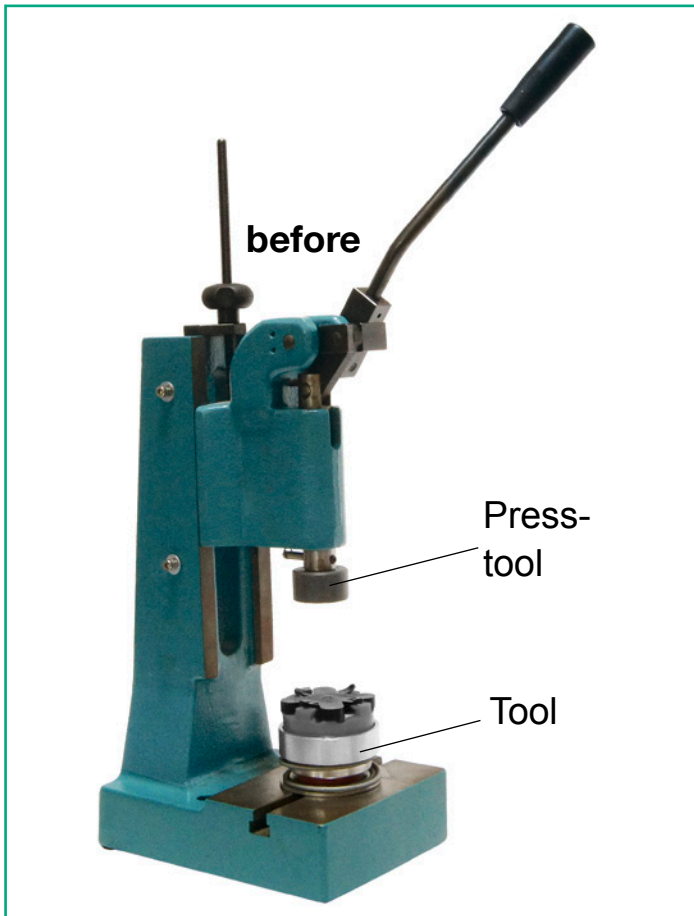


Figure 1.2

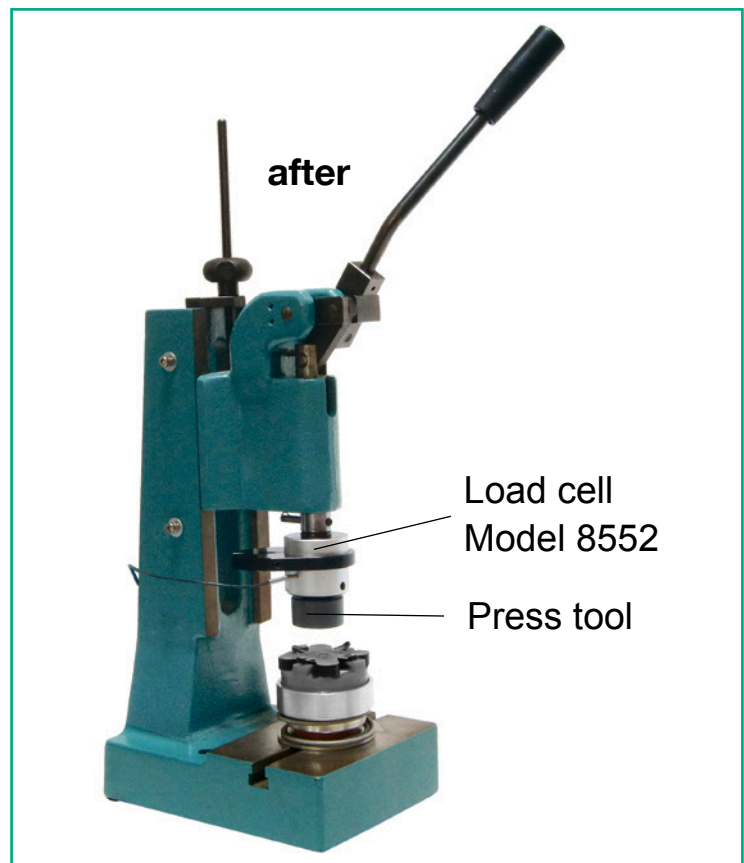


Figure 1.3

## **Step 2: Mounting the displacement measuring system on the manual press**

In the next step you need to mount the displacement-sensor adapter on the side of the press (Figure 1.4).

The fastening plate from the 5501-Z004 set for mounting the displacement sensor can be fitted either to the plane or to the domed surface of the press head. Lay the plates, according to the situation, onto the longitudinal ribs that are attached to the rear. Alternatively, use three points of the supplied cutting feet, which are to be inserted in the ready-made blind holes. Two screws are enough to fasten it.

Another way to mount the displacement sensor is illustrated in data sheet 8552, in case there is no room on the press head.



Figure 1.4: Displacement measuring system on the press



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Slide the displacement sensor into the adapter with the sensing tip pointing downwards (typical application). The sensing tip must touch the carrier fitted earlier on the load cell. Slide the displacement sensor downwards (with press in raised position) until the sensing tip of the displacement sensor lies practically in its upper limit of travel (1-2 mm difference) (Figure 1.5).



Figure 1.5: Displacement measuring system in the raised position

Now check the operation of the press in the lowered position (bottom dead center BDC) by moving the press ram carefully downwards. The displacement sensor must travel with it smoothly and with no transverse forces acting on, and must not reach its lower limit of travel in the BDC. Make sure that the sensing tip is resting on the load-cell carrier (Figure 1.6).



Figure 1.6: Displacement measuring system in the lowered position

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## Note/Tip

Any pre-use correction required simply involves slight readjustment of the displacement sensor. The aim is to let the sensor move freely to and fro between the raised and lowered press position without it reaching its limits of travel. Since the system has been designed to provide numerous adjustment options (carrier, displacement sensor and press head), you will quickly find the correct position for the displacement sensor.

After any readjustment/realignment that is needed, finally fix all relevant attachments in place (carrier, displacement sensor and press head if necessary).

With the sensors now fitted on the manual press and mechanically adjusted to fit the parts to be pressed, they now need to be connected to the ForceMaster.

Then switch on the ForceMaster 9110.

## **Step 3: Configuring the measurement chain on the ForceMaster 9110**

After a self-test, the message "sensors changed" is displayed.

This is correct because new sensors have been fitted and connected to the ForceMaster 9110.

Press the gray operating knob to confirm this message.



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To train the measurement chain, you simply need to run an **"Autoconfig"** process.

The ForceMaster 9110 sets the evaluation elements automatically for the part to be pressed.

To access this menu, you need to insert the Master card in the card reader (on front of unit) and turn the operating knob to the right until **"Autoconfig"** appears in the display (Figure 1.7).



Figure 1.7: Autoconfig

You open the sub-menu by pressing the operating knob.

You are now at **Step 1 teach-in**.



Figure 1.8: Autoconfig Step 1

Please press the grey operating knob again.

The display now shows:

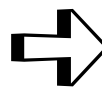


Figure 1.9: Step 1 - Display and press process...

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After you have pressed a part, the following appears on the display:

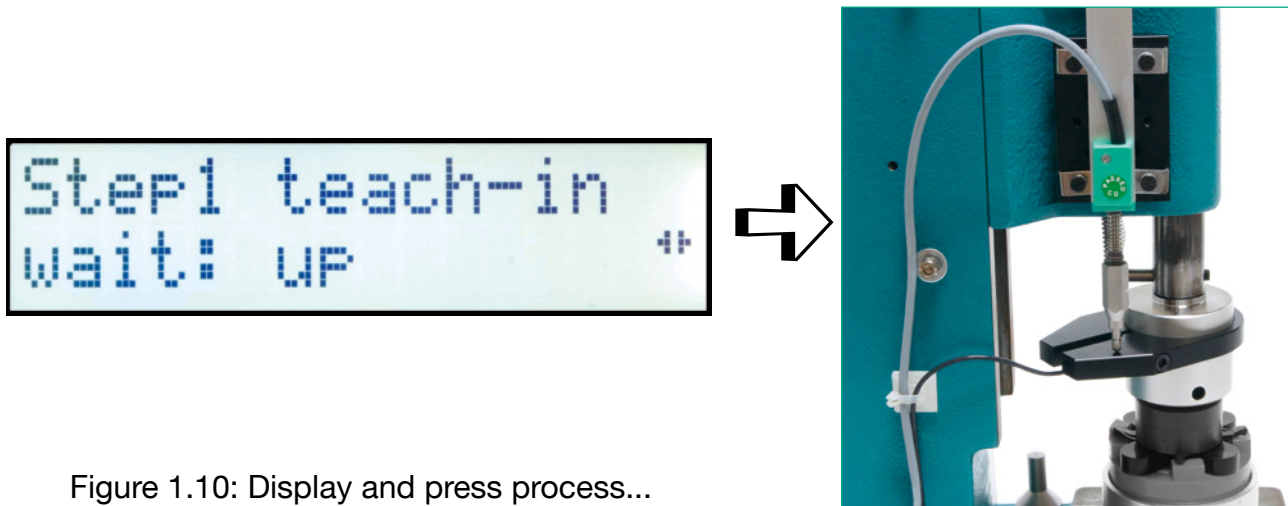


Figure 1.10: Display and press process...

Then the numerical display shows Step 2, set modes.

Turn the operating knob until you get the following display (Figure 1.11):



Figure 1.11: And we're ready!

The ForceMaster 9110 saves the trained teach-in values and you can now start monitored production.

Some corrections may be needed to the teach-in values trained during the autoconfig process. This can be done manually as required.

This quick guide is merely intended as a brief introduction to help you get working fast.

Please contact us if you have further technical questions.

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We wish you continued success and are happy to provide you with advice on new measurement tasks and projects.

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