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Technical Information

DL-7

automatic press with DM-7 homogenizer

for manufacturing coal samples for dilatometric testing
according to ISO 23873, ISO 8264, DIN 51739, (ISO 349) Standards

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Description of functioning of the DL-7 automatic press

The DL-7 automatic press with DM-7 homogenizer is used to make test samples for the dilatometric testing of coal intended for coking (see DF-7 Dilatometer). The preparation of coal for the production of a test sample (coal briquette) for the dilatometric test and its own manufacture is given by ISO 23873, ISO 8264, DIN 51739, (ISO 349) Standards.

Prior starting the sample preparation, the operator will fill in the input data into the form that initiates start of the control program by selecting "Main Menu" - "Sample Preparation". Depending on the circumstances, data for 1 to 8 samples, of which 1 to 7 will then be tested in parallel in the DF-7 dilatometer, will be written here. Once this data have been entered, it is possible to begin the operation of sample manufacturing, supervised and controlled by the computer. Prepared coal mixture (by use of the DM-7 homogenizer) is filled up (in the prescribed manner, see ISO 8264 Standard) into the mold placed on the sample preparation stand. The mold is then moved onto a base for pressing and, together with the base, placed in the press. This completes the preparation of the sample for pressing. Then, the operator switches the function switch to the "AUT" position. The "AUT" signal light gets on and the number of the sample that will be pressed appears on the press display and on the technological on screen. In this moment, the apparatus is ready to start pressing.

After pressing the "START" button the control of sample pressing is taken over by the computer and the pressing of sample starts. The pressing piston begins to move downwards for a predetermined time (can be changed) and its movement decelerates to the pressing speed then. The pressing force can be watched by the operator of the press on a digital display. When the nominal pressure of 15 kN is reached, the pressing stops and waits for about 10 seconds whether the pressure drop is not greater than the allowable (adjustable parameter, usually 10 %). If so, the computer will re-raise the pressure to the 15 kN value and re-perform this checking. This is repeated until the pressure decrease comes into the allowed tolerance range. If the required conditions were met, the computer terminates the sample pressing, and the pressing piston moves upwards to its upper starting position. The pressing process therefore ends when the sample (briquette) is already compact. The operator now removes the mold together with the base for pressing from the press. The mold is then moved onto the base for sample pushing out and the assembly is put back into the press. The estimated length of this manipulation is about 10 seconds (can be set). After it has elapsed and the "START" button is pressed again, the control will be taken over by the computer and sample pushing out from the mold will be made. Then, the apparatus returns to the starting position. Upon completion of this operation, the operator moves the compressed sample into the sample length measuring gauge, and finishes the sample.

This procedure is repeated as many times as how many samples were entered into the measurement preparation protocol. Both the pressure course and the pressure value can be changed by the responsible person (under the password) by changing adjustable parameters in the control program. It is up to this person to choose the optimal way of pressing in accordance with the Standard. All manipulations with parameter change and device's own operation are written to the computer's disk into the "HISTORY" file

The subject of delivery is the equipment itself, its commissioning, and the training of laboratory personnel for its safe operation as well as basic maintenance. Together with the DL-7 automatic press, a DM-7 homogenizer is also supplied for homogenization of the tested coal mixture. Homogenization prior to pressing guarantees defined and stable conditions for all manufactured samples.

Base technical data to the DL-7 equipment

Type of automatic press	DL-7L
Pressing force – nominal value	15kN
Pressing force – maximum value	20kN
Safety limit set on	17kN
Measuring of pressing force	by electric strain gauge
Accuracy	0.2 %
Control of pressing force	semi-automatic
Manual handling	yes
Duration of pressing cycle	ca. 90 sec
Type of homogenizer for mixture preparation	DM - 7

Working conditions

Allowed temperature range	+ 5 to + 40 °C
Relative humidity	40 to 80 %
Working position of apparatus	horizontal
Power supply	230V, 50Hz,
Protecting	4A

General parameters

Dimensions	600 x 300 x 650 mm
Weight	ca. 40 kg

The equipment meets the requirements of Standards concerning operational safety.

Accessories for manufacturing of dilatometric samples

Sample preparation stand	1 pc.
Base for sample pressing	1 pc.
Base for briquette pushing out	1 pc.
Pressing mould	1 pc.
Measuring trough	1 pc.
Gauge for checking the conicity of the mold	1 pc.
Striking pin	1 pc.

Parameters of the used control computer

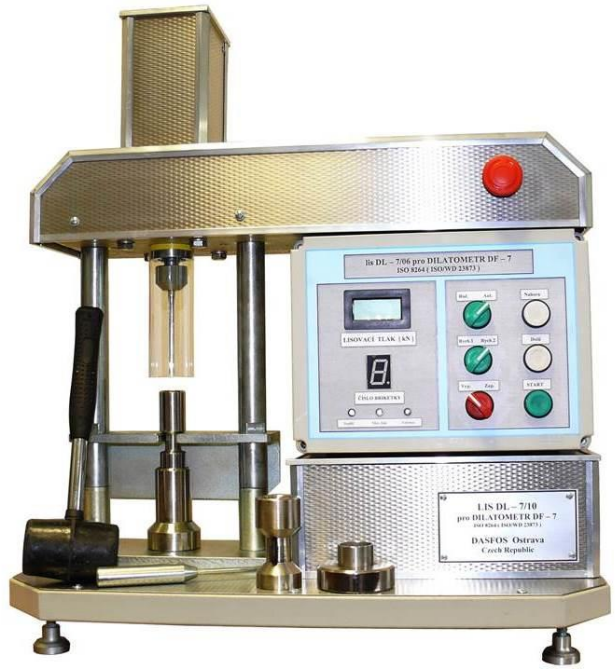
Operational system	Windows XP, RTX 6.2
Motherboard	dual core processor
RAM memory	DDR2 2048 MB
Hard disk	500 GB, SATA II, 7200 rev.

DVD drive	±RW
LCD monitor	19''
Printer	HP
Other accessories	graphics card, internal card reader, optical mouse, wireless keyboard, interface cards for controlling the device.

Application software

Measuring and control software with communication by "MENU" – with possible modifications according to users' needs, through the screen for entering information to samples. Including the agenda for archiving data to sample preparation and protocols to the measurements.

Photographs of the equipment



The DL-7 automatic press

The DM-7 homogenizer