

IMPACT
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**50kN Marshall Load Frame
BM220**

Impact Test Equipment Ltd
www.impact-test.co.uk & www.impact-test.com

User Guide
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**Impact Test Equipment Ltd.
Building 21 Stevenston Ind. Est.
Stevenston
Ayrshire
KA20 3LR**

T: 01294 602626

F: 01294 461168

E: sales@impact-test.co.uk

Test Equipment Web Site

www.impact-test.co.uk

Test Sieves & Accessories Web Site

www.impact-test.com

Handbook

This handbook is intended for use by the carrier, installation engineer, machine operator and maintenance technician.

Please read it carefully because it contains information regarding the operation of the machine in safe conditions. This handbook has to be considered a part of the product and relates only to the machine it is delivered with. Keep the handbook in good order during the life and use of the machine so it may be consulted at any time. In the case of a change of ownership, the handbook and its enclosures should remain with the machine. The manufacturer assumes no liability for any damage caused by misuse of the machine.

The manufacturer reserves the right to modify this handbook and any other technical literature at any time without notice.

Marshall Test

The Marshall test utilises a motorised load frame to apply a compressive load on a test specimen in the test mould. The results are determined from the maximum load applied and the corresponding flow reading. The test is used for bituminous mix design.

Machine Introduction

The Impact BM220 Marshall machine is a motorised load frame specifically designed to carry out Marshall tests.

It is a bench-mounted system with a motorised drive.

The speed is pre-set to 50.8 mm per minute.

Additional items required to perform the test such as load ring, flow dial gauge, breaking head stability mould etc. are not supplied as part of the Marshall load frame,

Unpacking

Ensure that shipment is stored under suitable conditions. Water and excessive humidity can cause oxidation and therefore damage to the machine.

Take note of any handling instructions on the packaging. Ensure that machine is stored the correct way up.

Remove all packaging and protection from the shipment. Check that all parts of the machine are free from damage. If any parts appear to be damaged **DO NOT SWITCH ON OR OPERATE THE MACHINE**. Refer to Impact for advice and local repair facilities.

Ensure that all documentation and manuals that may be included inside the packaging are retained.

Assembly

The Marshall machine is a 50kN load frame fitted with a single speed AC motor.

It comes in 4 parts for quick and easy assembly on site.

- The main cabinet, housing all the mechanics and electronics.
- 2 strain rods
- 1 cross beam.

Carefully place each strain rod through the hole in the top of the cabinet making sure the rod is held vertically.

The strain rod is threaded at the bottom and will locate in a threaded hole in the machine base. Make sure the plastic sleeve on the rod is placed in the hole **AFTER** the rod is secured. If you try to tighten the rod when the plastic sleeve is in position it will make it very difficult to fully tighten the rod.

Finally fit the crossbeam to the rods.

Installation

The installation site of the machine should be chosen with care to ensure the following considerations are taken into account.

- The machine must be installed so that it is accessible from all sides for maintenance
- No unauthorised persons should be allowed to access the machine
- No dangerous objects should be sited near the machine
- The supporting surface must be sufficiently smooth and levelled
- Acceptable temperature range - +5°C to +40°C
- Acceptable humidity range – 30% to 90%

A suitably skilled operative should carry out installation.

A qualified electrician should carry out all electrical connections.

Always check the plate on the machine for information regarding voltage, frequency etc.

Operation

There is a 3 position rotary control switch on the front panel.

- 1) To operate the machine, firstly switch on the power. The rotary control switch has 3 positions and functions:

UP

STOP

DOWN

Turn the switch to the required position for operation.

- 2) The machine is fitted with electronic limit switches in both directions. This prevents the user from damaging the machine or motor as the platen will automatically STOP when the limit of travel is reached.
- 3) The speed of the Marshall machine is pre-set to 50.8 mm per minute. This speed is not changeable.

Maintenance

Under normal operation the machine does not require any special maintenance, as all parts are maintenance free. All that is required is to keep the machine in the conditions specified at the beginning of this handbook and to ensure that it is not accidentally damaged in any way. Periodically clean the machine and oil parts that are not painted. Do not use solvents, which may damage the paint and made of synthetic materials.

If the machine is to be stored and not used for any length of time disconnect the electricity supply, oil the parts that are not painted and cover the machine to protect it from dust.

Should you experience any problems with your machine please contact your local distributor or Impact Test Equipment head office.