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Specification for

The accuracy of machine tools and methods of test —

**Part 11: Drilling machines, vertical
floor mounted column and pillar types**

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National Federation of Engineers' Tool	and Technology
Manufacturers	Ten individual experts

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Foreword

This Part of this British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee under an accelerated procedure for implementing agreements of the International Organization for Standardization (ISO) in British Standards. This part of the standard conforms to ISO 2772, “*Test conditions for box type vertical drilling machines — testing of the accuracy*” and ISO 2773, “*Test conditions for pillar type vertical drilling machines — testing of the accuracy*”.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of this British Standard specifies requirements for the accuracy of drilling machines of vertical column and pillar type, by establishing permissible deviations from certain essential dimensional and geometrical characteristics, and by prescribing, by reference to BS 3800, the details of the tests to be carried out to verify compliance with these requirements.

This Standard is applicable to machines of general purpose use and normal accuracy.

The Standard deals only with the verification of accuracy, and does not apply to the testing of the running of the machine (vibrations, abnormal noises, stick-slip motion of components, etc.), nor to machine characteristics (speeds, feeds, etc.) which should generally be checked before testing accuracy.

NOTE The title of the British Standard referred to in this standard is given on the inside back cover.

2 Accuracy requirements

Machines shall comply with the accuracy requirements given in Table 1 and Table 2.

The tests to be made in order to verify these requirements shall be in accordance with the details given in Table 1 and Table 2, and the requirements specified in Clause 3.

3 Application of test methods

3.1 In applying the tests detailed in Table 1 and Table 2, reference should be made to BS 3800, especially concerning the installation of the machine before testing, warming up of spindles and other moving parts, the description of measuring methods and the recommended accuracy of testing equipment.

3.2 The tests may be applied in any order that is practicable and that makes for ease of mounting of instruments or gauging. The sequence in which the geometrical tests are listed in Table 1 and Table 2 relates to the sub-assemblies of the machine, and it is not intended to impose the practical order in which the tests are to be made.

3.3 It is not always necessary for all the tests specified in this standard to be carried out.

The purchaser shall be at liberty to select, in agreement with the manufacturer, those tests relating to the properties that are of interest to him, and these tests are to be clearly stated when the machine is ordered.

3.4 When establishing the tolerance for a measuring range different from that given in this standard (see 2.311 in BS 3800:1964) it should be taken into consideration that the minimum value of tolerance is 0.01 mm for geometrical tests.

4 Abbreviations

For the purposes of this standard, various methods of expressing permissible deviations are employed, each having a particular type of application. The methods employed are as follows:

—/—	This type of expression applies to deviations of perpendicularity that are ratios.
—for any length of—	This type of expression applies to deviations of straightness and parallelism, and is used in fact for local permissible deviations, the measurement length being obligatory.
—per—	This type of expression applies to deviations of straightness and parallelism, and is used to recommend a measurement length, but in this case the proportionality rule comes into operation if the measurement length differs from that indicated.

5 Diagrams

For reasons of simplicity, the diagrams in this standard illustrate only one type of each category of machine.