INTERNATIONAL STANDARD 447

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Machine tools — Direction of operation of controls

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 39 has reviewed ISO Recommendation R 447 and found it suitable for transformation. International Standard ISO 447 therefore replaces ISO Recommendation R 447-1965.

ISO Recommendation R 447 was approved by the Member Bodies of the following countries :

Argentina	Greece	Spain
Austria	Hungary	Sweden
Belgium	India	Switzerland
Czechoslovakia	Italy	United Kingdom
Denmark	Japan	U.S.A.
Egypt, Arab Rep. of	Korea, Rep. of	U.S.S.R.
Finland	Netherlands	Yugoslavia
France	New Zealand	
Germany	Poland	

The Member Bodies of the following countries have subsequently approved this Recommendation :

Philippines
South Africa, Rep. of

No Member Body expressed disapproval of the Recommendation.

Printed in Switzerland

Machine tools — Direction of operation of controls

1 SCOPE AND FIELD OF APPLICATION

This International Standard establishes rules for the direction of operation of controls whose function is to produce movement of controlled machine tool components in one or other of two opposing directions.

Its scope does not include controls for components which rotate continuously in the same direction during the normal functioning of the machine (such as controls for electric motors).

2 GENERAL RULES

If, for special reasons, the following rules cannot be applied, then the directions of operation of the control and the corresponding directions of movement of the controlled component shall be shown on the machine indicator plate.

2.1 Lever control

The lever shall be so placed that

- for the control of a rectilinear movement, the line joining the extreme positions of the handle, on either side of the neutral position, is approximately parallel to the direction of the movement of the controlled component;
- for the control of a circular movement, the plane in which the lever arm rotates is parallel to that of the controlled component.

In either case, the movement of the lever shall produce a movement of the controlled component in the same direction.

This rule is valid for the control of movements produced manually (figure 1), as well as for starting automatic movements (figures 2 and 3).

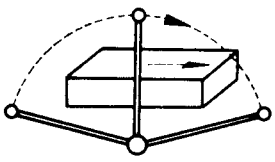

FIGURE 1

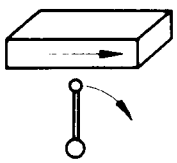

FIGURE 2

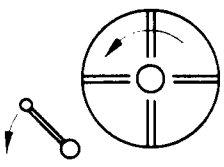

FIGURE 3

2.2 Push-button control

The line of push buttons shall be placed parallel to the movement of the controlled component and the operation of the right-hand button, or the farthest button or the top button, shall produce a movement respectively to the right, or away or upwards (for an operator placed in the operating position).

This rule is applicable for the control of a component with a rectilinear movement (figure 4) as well as for the control of a component with a circular movement, but considering only, in the latter case, the general direction of movement of the peripheral part of the controlled component which is the nearest to the line of push buttons (figure 5).

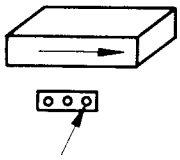

FIGURE 4

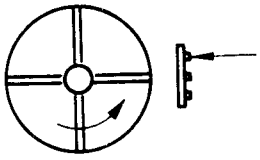

FIGURE 5

2.3 Wheel control

The clockwise rotation of the wheel (for an operator facing the shaft end on which the wheel is mounted) shall produce, for the controlled component,

— a rectilinear movement to the right, or away, or upwards (for an observer looking in a direction parallel to that of an operator in the operating position, if the wheel axis is vertical, or facing the shaft end of the wheel, if it is horizontal);

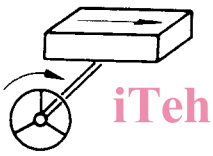

FIGURE 6

FIGURE 7

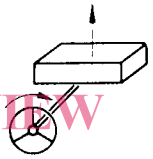

FIGURE 8

— or a clockwise rotation (for an observer facing the spindle or the shaft end on which the controlled component is mounted);

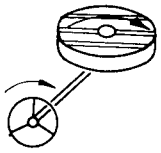

FIGURE 9

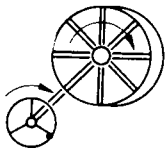

FIGURE 10

— or a movement towards the centre (clamping of chucks).

3 SPECIAL CASES

3.1 If the direction (vertically up or down, horizontally to right or left, horizontally away or towards) of the movement of the controlled component can be varied by a preselector device independent of the control under consideration, the above rules apply to that one of the directions which is most frequently used.

3.2 If the same lever is used for starting both the cutting movement and the feed movement of the tool, the above rules apply to the feed movement.