
International Standard



447

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Machine tools — Direction of operation of controls

Machines-outils — Sens de manœuvre des organes de commande

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (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 authorized 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.

International Standard ISO 447 was developed by Technical Committee ISO/TC 39, *Machine tools*.

The first edition (ISO 447-1973) had been approved by the member bodies of the following countries :

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

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Philippines
South Africa, Rep. of

This second edition, which cancels and replaces ISO 447-1973, incorporates draft Amendment 1, which was circulated to the member bodies in January 1983 and has been approved by the member bodies of the following countries :

Belgium	Italy	Spain
Brazil	Korea, Dem. P. Rep. of	Sweden
Czechoslovakia	Korea, Rep. of	Switzerland
France	Mexico	United Kingdom
Germany, F. R.	Poland	USA
Hungary	Romania	USSR
India	South Africa, Rep. of	

No member body expressed disapproval of the document.

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 as 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).

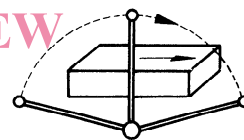


Figure 1

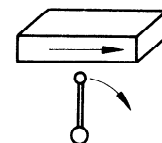


Figure 2

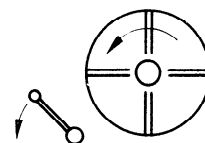


Figure 3

2.2 Push-button control

2.2.1 Fixed 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 furthest button or the top button, shall produce a movement to the right, or away, or upwards respectively (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).

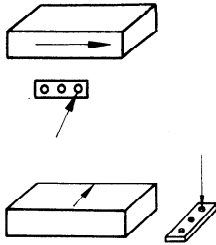


Figure 4

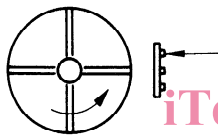


Figure 5

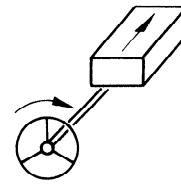


Figure 7

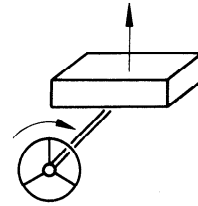


Figure 8

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

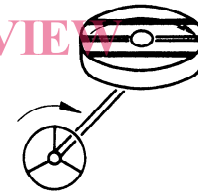


Figure 9

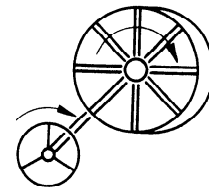


Figure 10

2.2.2 Movable control (for example, pendent control)

The terms of paragraph 2.2.1 remain valid but it is necessary to show on a movable control, which can rotate more than 180°, an outline of the machine in order to prevent ambiguity in the directions of motion.

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);

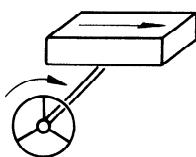


Figure 6

- 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.