International Standard ISO 2860

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Earth-moving machinery — Minimum access dimensions

Engins de terrassement — Dimensions minimales des passages

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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 2860 was developed by Technical Committee ISO/TC 127, *Earth-moving machinery*, and was circulated to the member bodies in April 1982.

It has been approved by the member bodies of the following countries :

Australia	Finland	Romania
Austria	Germany, F.R.	Spain
Belgium	Italy	Sweden
Brazil	Japan	United Kingdom
Czechoslovakia	Korea, Dem. P. Rep. of	USA
Egypt, Arab Rep. of	Poland	USSR

The member body of the following country expressed disapproval of the document on technical grounds :

France

This third edition cancels and replaces the second edition (i.e. ISO 2860-1980).

Printed in Switzerland

Earth-moving machinery — Minimum access dimensions

1 Scope and field of application

This International Standard specifies the minimum access openings on earth-moving machinery for

1) the hand,

2) the head,

3) the body,

4) arm reach,

5) two-handed reach.

It provides engineers and designers with information in order that access openings provided in equipment and machinery for purposes of inspection, adjustment and maintenance are made large enough for the intended function by the man in the field or shop.

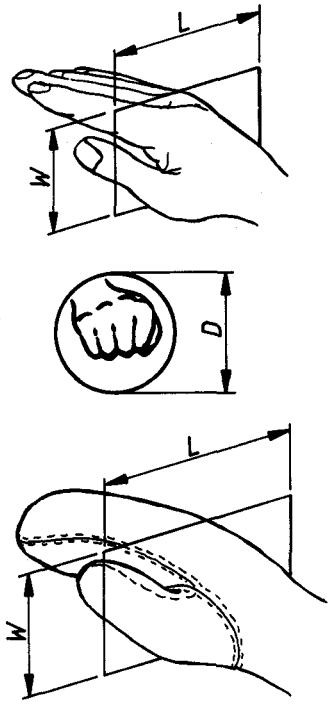
The larger openings for access with arctic clothing are for construction equipment intended for use in cold environments.

Based on available anthropometric data, the recommended openings are the smallest that will accommodate 95 % of the worldwide operator population. In most cases openings larger than the recommended minimum will be more useful and allow greater efficiency.

2 Minimum access openings

The dimensions shown in 2.1 to 2.4 are the recommended minimum for limited activity through the opening. Larger openings will be needed in specific instances, depending upon the nature of the task, size and mass of the parts, etc.

2.1 Hand access



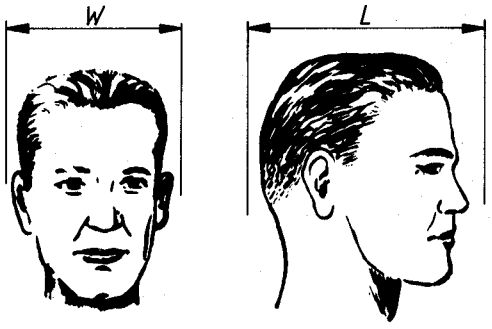
Dimensions in millimetres

Minimum dimensions	Square	Round	Rectangular	
	$W = L$	D	W	L
Hand bare	110	110	65	110
With arctic mitten	150	150	100	150

NOTE — Optional on all corners, maximum 25 mm radius.

Figure 1 — Recommended minimum dimensions for hand access, 95th percentile

2.2 Head access



Dimensions in millimetres

Minimum dimensions	Square	Round	Rectangular	
	$W = L$	D	W	L
Head bare	230	230	210	230
With arctic clothing	280	300	280	300
With hat, helmet	310	330	290	330

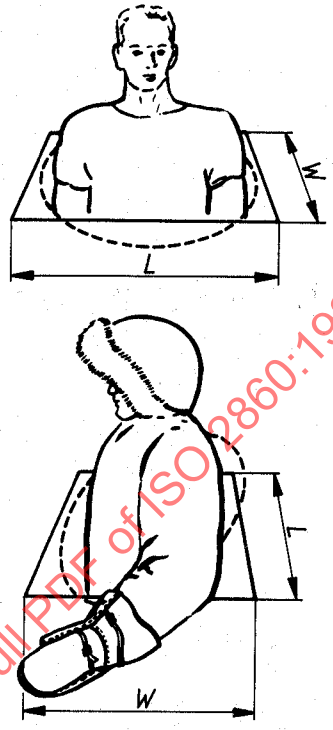
NOTES

1 Optional on all corners, maximum 25 mm radius.

2 Arctic clothing includes helmet and parka hood.

Figure 2 — Recommended minimum dimensions for head access, 95th percentile

2.3 Body access



Dimensions in millimetres

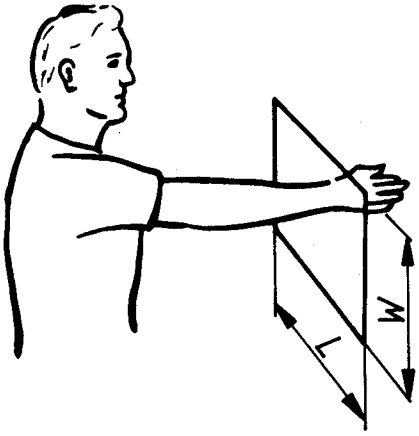
Minimum dimensions	Square	Round	Rectangular		Elliptical	
	$W = L$	D	W	L	Min. axis	Maj. axis
Normal clothing	520	560	330	560	330	560
Arctic clothing	600	650	470	650	470	650

NOTE — Optional on all corners, maximum 25 mm radius.

Figure 3 — Recommended minimum dimensions for body access, 95th percentile

2.4 Reach access

2.4.1 Arm access



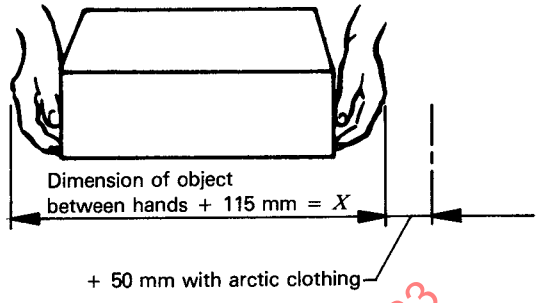
Dimensions in millimetres

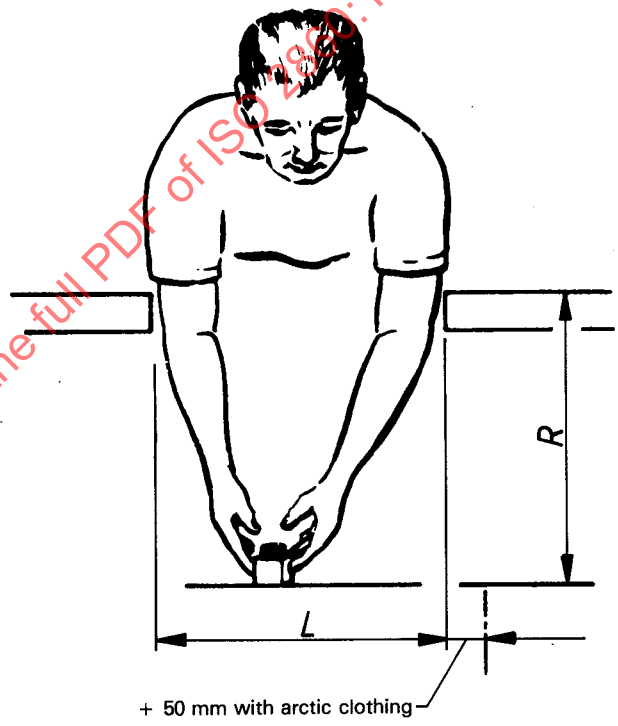
Minimum dimensions (one arm)	Square	Round	Rectangular	
	$W = L$	D	W	L
Arm bare	200	200	150	200
With arctic clothing	250	250	200	250

NOTE — Optional on all corners, maximum 25 mm radius.

Figure 4 — Recommended minimum dimensions for arm reach access, 95th percentile

2.4.2 Two-handed access





Dimensions in millimetres

Minimum dimensions (two hands)	Required reach	Rectangular	
	R	W[1]	L
Arm bare	R	150	$\frac{3}{4}R + X$ but { 200 min. 560 max.
Arctic clothing	R	200	$\frac{3}{4}R + 50\ \text{mm} + X$ but { 250 min. 650 max.

1) W = height of opening.

Figure 5 — Recommended minimum dimensions for two-handed access, 95th percentile