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

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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 July 1979.

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

Australia	Finland	Romania
Austria	Germany, F. R.	South Africa, Rep. of
Belgium	Italy	Spain
Brazil	Japan	Sweden
Bulgaria	Korea, Rep. of	United Kingdom
Czechoslovakia	Philippines	USSR
Egypt, Arab Rep. of	Poland	

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

France
USA

This second edition cancels and replaces the first edition (i.e. ISO 2860-1973).

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 efficient performance of the intended function by the man in the field or shop.

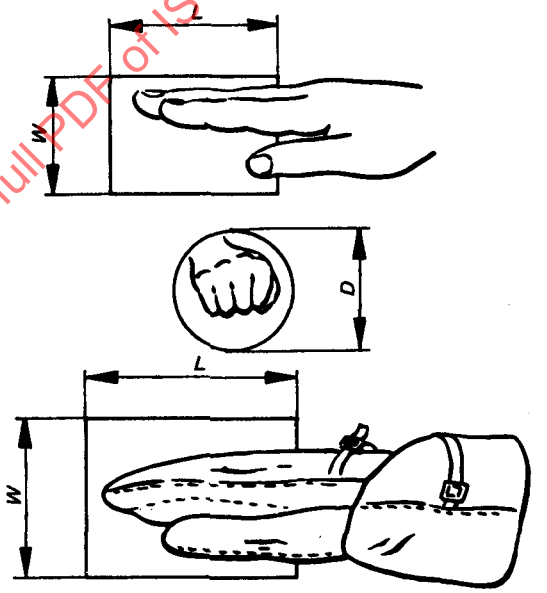
The larger openings for access with arctic clothing are intended for construction equipment intended for use in cold environments. Based on available anthropometric data, the recommended openings are the smallest that will accommodate 95 % of people.

In many cases larger openings will be mandatory to allow performance of the specific intended operation. 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	100	100	100	60	105
With arctic mitten	140	140	140	95	140

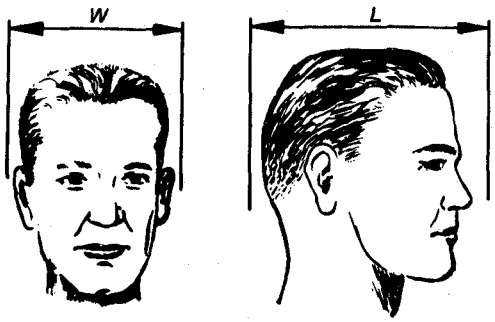
Dimensions in inches

Minimum dimensions	Square		Round	Rectangular	
	W	*L*	*D*	*W*	*L*
Hand bare	4	4	4	2.25	4
With arctic mitten	5.5	5.5	5.5	3.75	5.5

NOTE — Optional on all corners, maximum 25 mm (1 in) 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	230	175	230
With arctic clothing	255	255	280	230	280
With hat, helmet	305	305	305	255	305

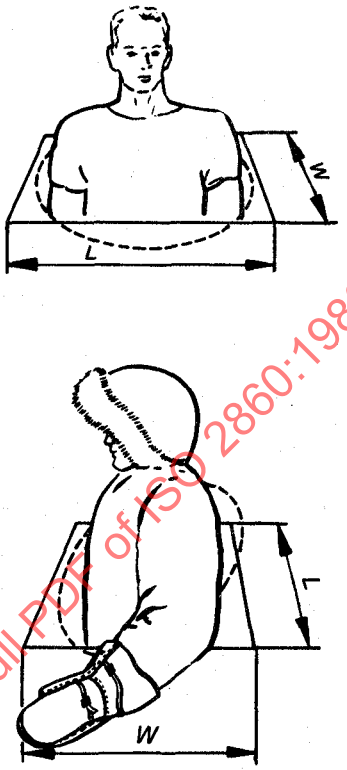
Dimensions in inches

Minimum dimensions	Square		Round	Rectangular	
	W	*L*	*D*	*W*	*L*
Head bare	9	9	9	7	9
With arctic clothing	10	10	11	9	11
With hat, helmet	12	12	12	10	12

NOTE — Optional on all corners, maximum 25 mm (1 in) radius

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

2.3 Body access



Dimensions in millimetres

Minimum dimensions	Square		Round	Rectangular	
	W	*L*	*D*	*W*	*L*
Normal clothing	460	460	560	310	560
Arctic clothing	600	600	700	470	650

Dimensions in inches

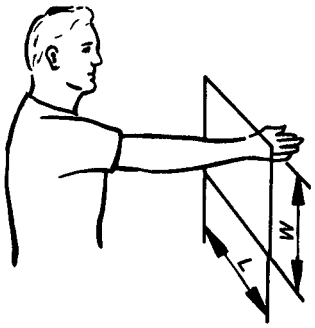
Minimum dimensions	Square		Round	Rectangular	
	W	*L*	*D*	*W*	*L*
Normal clothing	18	18	22	12	22
Arctic clothing	24	24	27.5	18.5	25.5

NOTE — Optional on all corners, maximum 25 mm (1 in) 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	200	150	200
With arctic clothing	250	250	250	200	250

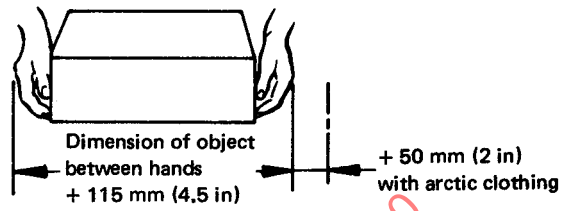
Dimensions in inches

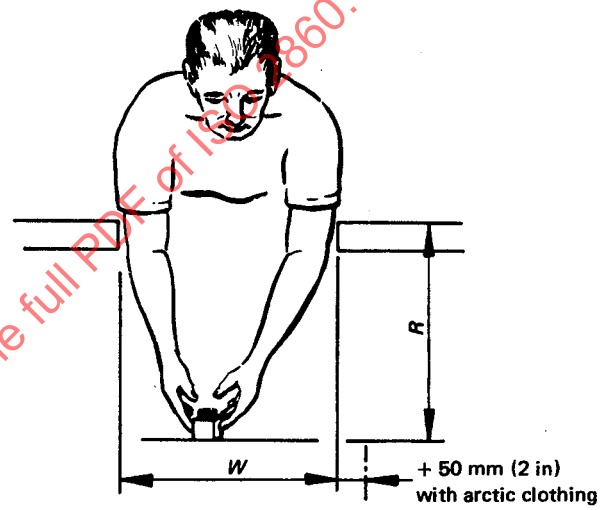
Minimum dimensions (one arm)	Square		Round	Rectangular	
	W	*L*	*D*	*W*	*L*
Arm bare	8	8	8	6	8
With arctic clothing	10	10	10	8	10

NOTE – Optional on all corners, maximum 25 mm (1 in) radius.

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

2.4.2 Two-handed access





Dimensions in millimetres (inches)

Minimum dimensions (two hands)	*R*	*W*
	Required reach	Minimum width
Normal clothing	*R*	$\frac{3}{4}R$
Arctic clothing	*R*	$\frac{3}{4}R + 50$ mm (2 in)

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