
INTERNATIONAL STANDARD



485

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Aircraft water-methanol pressure connections

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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.

International Standard ISO 485 was drawn up by Technical Committee ISO/TC 20, *Aircraft and space vehicles*. It was submitted directly to the ISO Council, in accordance with clause F.7.1 of the Directives for the technical work of ISO.

This International Standard cancels and replaces ISO Recommendation R 485-1966, which was approved in March 1961 by the Member Bodies of the following countries :

Belgium	Israel	Spain
Canada	Italy	Sweden
Chile	Japan	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	New Zealand	U.S.S.R.
Germany	Poland	Yugoslavia
Iran	Portugal	

No Member Body expressed disapproval of the document.

Aircraft water-methanol pressure connections

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the dimensions of 19 mm (3/4 in) and 38 mm (1 1/2 in) bore pressure connections for water-methanol for aircraft.

A space envelope is also specified for each size of connection.

2 DIMENSIONS

Dimensions of connectors are given in Figures 1 and 3, and those for space envelopes in Figures 2 and 4.

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2.1 Connections of 19 mm (3/4 in)

The dimensions and tolerances of 19 mm (3/4 in) aircraft water-methanol pressure connections, suitable for rates of flow up to 114 l/min (25 gal (UK)/min), shall be as shown in Figures 1 and 2.

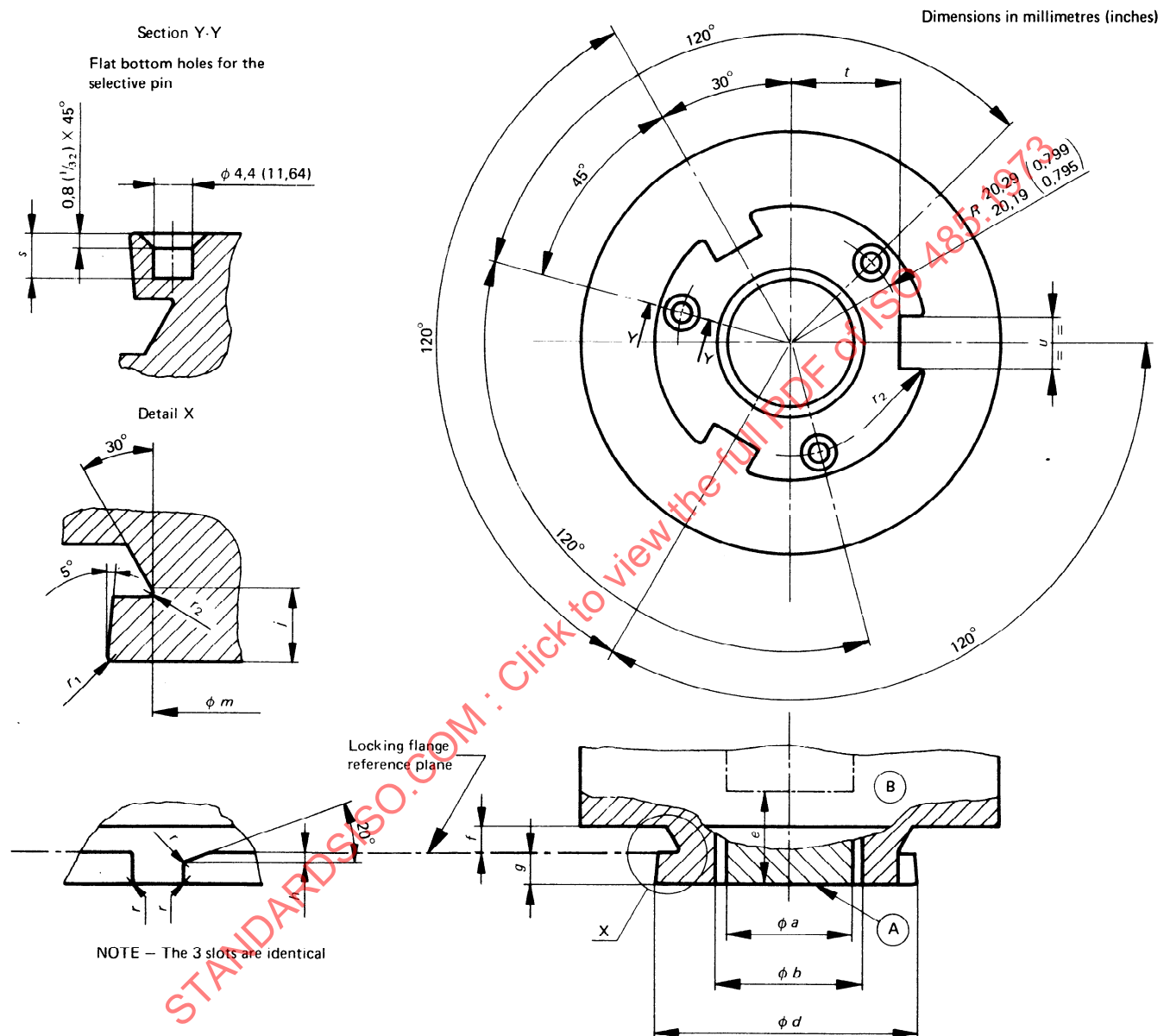


FIGURE 1 — Dimensions and connection detail

Dimension	mm	in	Dimension	mm	in	Dimension	mm	in
<i>a</i> min.	22,22	0.875	<i>g</i> max.	5,56	0.219	<i>r</i> ₁	1,2	3/64
			<i>g</i> min.	5,51	0.217			
<i>b</i> max.	25,68	1.011	<i>h</i> max.	0,76	0.030	<i>r</i> ₂ max.	0,5	0.020
<i>b</i> min.	25,55	1.006	<i>h</i> min.	0,64	0.025			
<i>d</i> max.	48,95	1.927	<i>j</i>	7,1	9/32	<i>s</i>	3,6	9/64
<i>d</i> min.	48,84	1.923						
<i>e</i> ¹⁾ min.	16,7	0.656	<i>m</i>	39,7	1 9/16	<i>t</i> max.	19,96	0.786
						<i>t</i> min.	19,71	0.776
<i>f</i> min.	4,9	0.193	<i>r</i>	0,8	1/32	<i>u</i> max.	10,44	0.411
						<i>u</i> min.	10,31	0.406

1) Valve travel.

Tolerances, unless otherwise stated :

dimensional tolerance = $\pm 0,1$ mm (± 0.005 in),
angular tolerance = $\pm 0^{\circ} 15'$.

NOTES

- (A) The valve face shall be parallel to the locking flange reference plane within this diameter and no part of the valve may extend beyond this face, but it may be recessed up to 0,76 mm (0.030 in) to allow for compressibility of valve seal. Configuration of the valve behind this face is optional.
- (B) The valve shall be spring loaded. Loading at 16,6 mm (0.656 in) travel shall not exceed 44,5 N (10 lbf) and loading in the valve shut position shall be 15,5 to 22,3 N (3 1/2 to 5 lbf).

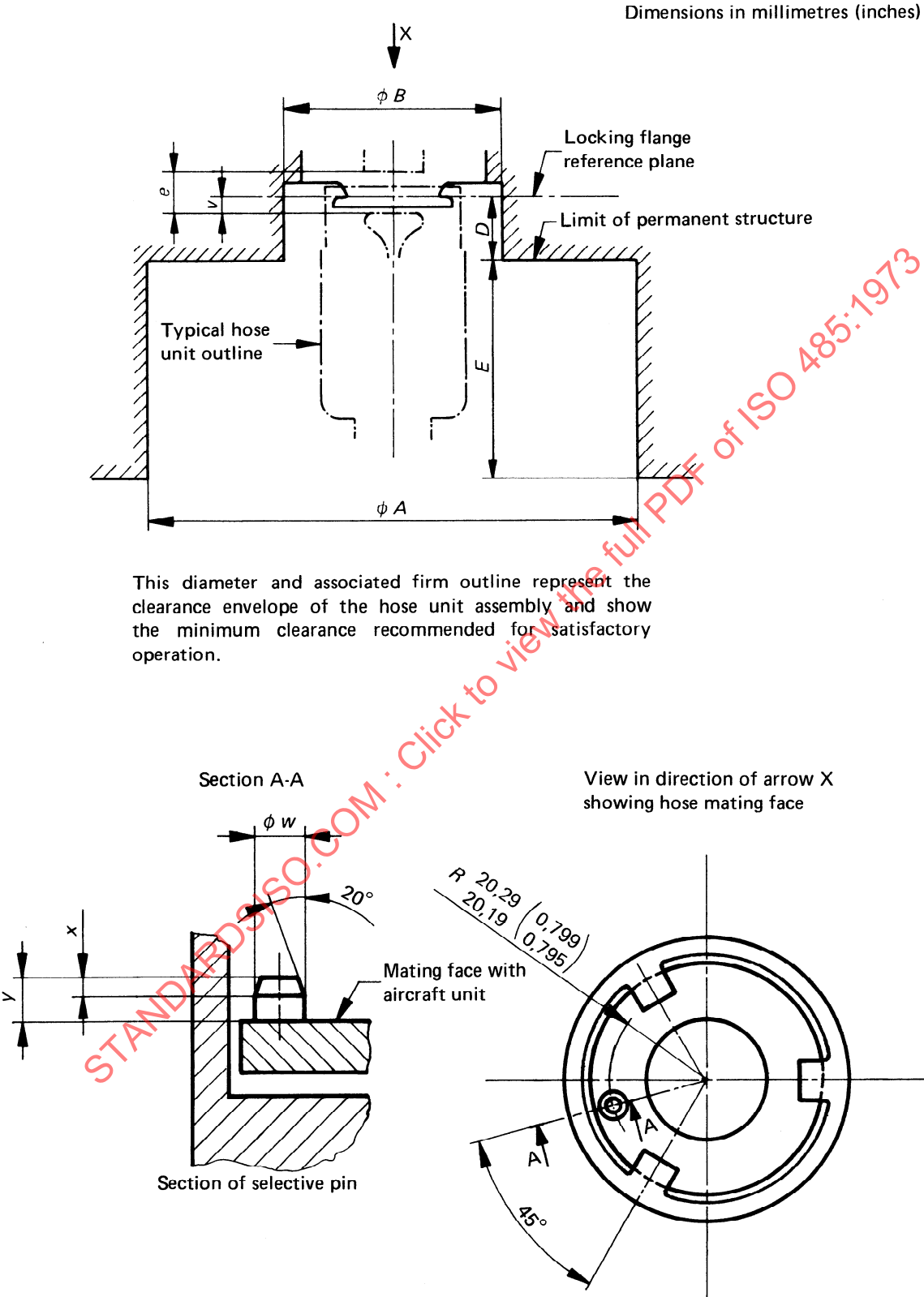


FIGURE 2 — Space envelope and connection detail

Dimension	mm	in	Dimension	mm	in
e_1 max.	16,66	0.656	A min.	203	8
min.	16,05	0.632	B min.	89	3 1/2
v_2	+ 5,7 ³⁾	+ 0.226	D max.	25	1
	- 5,6	- 0.220	E max.	89	3 1/2
w max.	4,06	0.160			
min.	3,96	0.156			
x	1,2	0.047			
y	3,2	0.125			

1) Hose unit valve travel (obtained by movement of mechanism within the hose unit).

2) Top of valve to locking flange reference plane, when hose unit valve is closed.

3) Face of valve in closed position may be between 5,7 mm (0.226 in) above and 5,6 mm (0.220 in) below the locking flange reference plane.

Tolerances, unless otherwise stated :

dimensional tolerance = $\pm 0,1$ mm (± 0.005 in),
angular tolerance = $\pm 0^\circ 15'$.

2.2 Connections of 38 mm (1 1/2 in)

The dimensions and tolerances of 38 mm (1 1/2 in) aircraft water-methanol pressure connections, suitable for rates of flow up to 546 l/min (120 gal (UK)/min), shall be as shown in Figures 3 and 4.

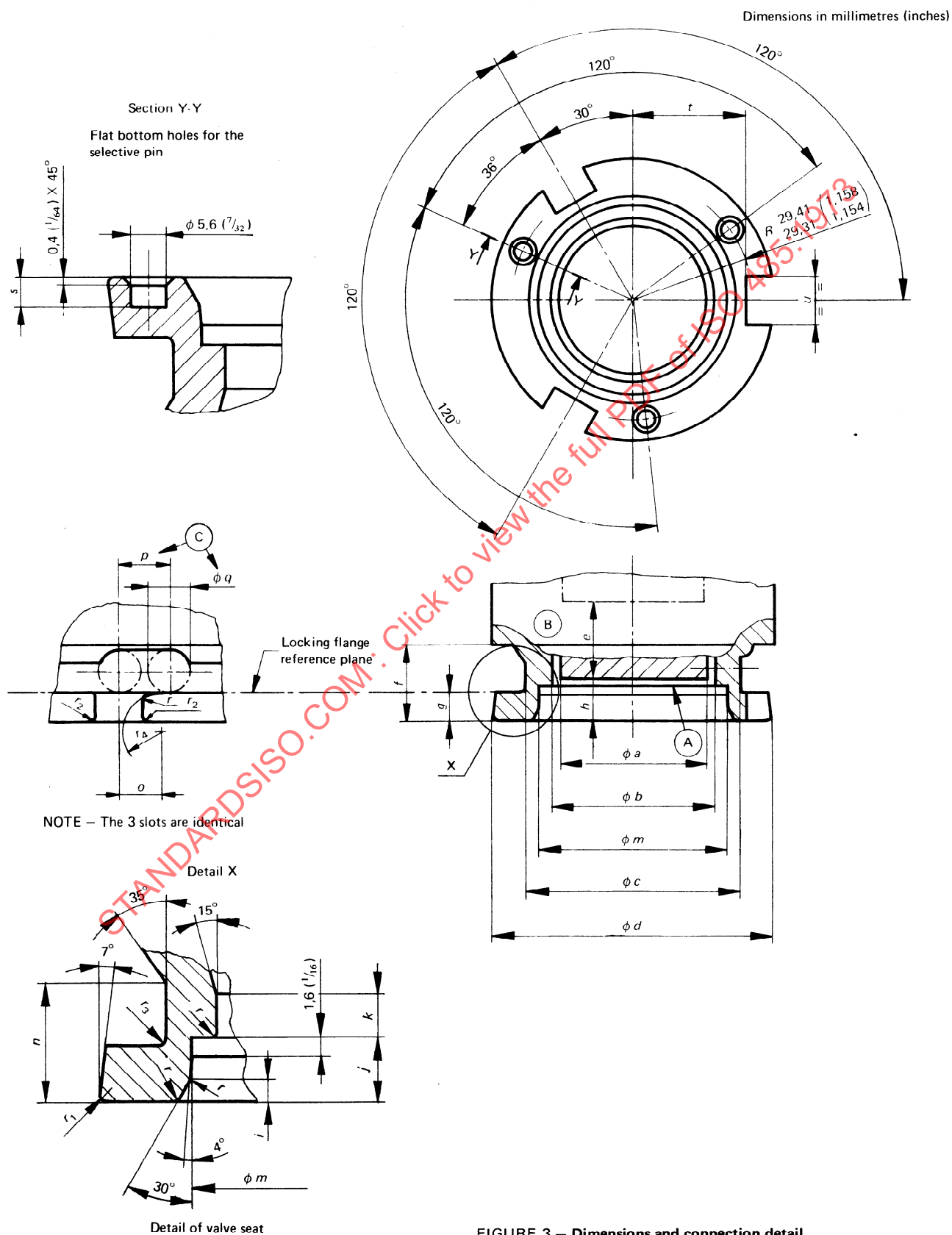


FIGURE 3 – Dimensions and connection detail

Dimension	mm	in	Dimension	mm	in	Dimension	mm	in
a min.	38,1	1 1/2	j max.	7,21	0.284	r	0,8	1/32
b max.	41,33	1.627	j min.	7,13	0.281	r_1	1,2	3/64
b min.	41,25	1.624	k	4,0	5/32	r_2	1,6	1/16
c	54,80	2.156	l	2,8	7/64	r_3	2,0	5/64
d max.	69,81	2.749	m max.	48,36	1.904	r_4	9,5	0.375
d min.	69,72	2.745	m min.	48,26	1.900	s	3,2	1/8
$e^{1)}$ min.	24	0.942	n	15,9	5/8	t	27,8 ⁰ -0,1	1 3/32 ⁰ -0.005
f	19,8	25/32	$o^{2)}$	11,1	7/16	u	11,9	15/32
g max.	6,35	0.250	$p^{2)}$	12,7	1/2			
g min.	6,30	0.248	$q^{3)}$ max.	11,28	0.445			
h max.	7,49	0.295	$q^{3)}$ min.	11,18	0.440			
h min.	7,11	0.280						

- 1) Valve travel.
2) Centres.
3) Diameter of cutter.

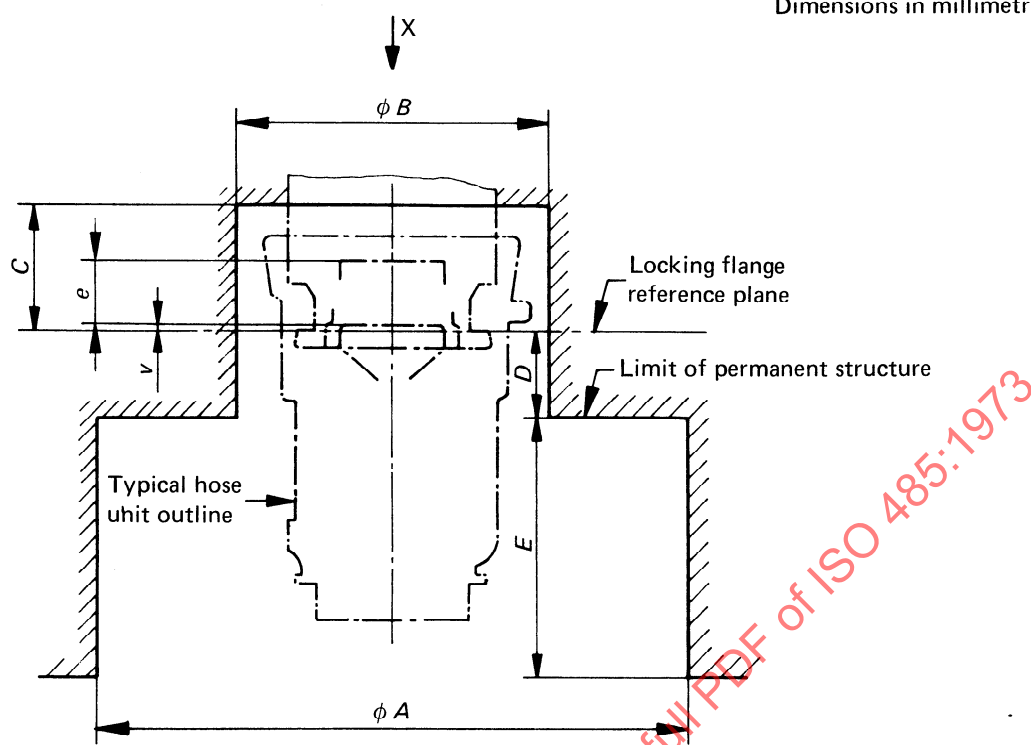
Tolerances, unless otherwise stated :

dimensional tolerance = $\pm 0,1$ mm (± 0.005 in)
angular tolerance = $\pm 0^\circ 15'$.

NOTES

- (A) Configuration of the valve behind this face is optional.
(B) The valve shall be spring loaded. Loading at 23,93 mm (0.942 in) travel shall not exceed 98 N (22 lbf) and loading in the valve shut position shall be 40 to 49 N (9 to 11 lbf).
(C) Diameter q represents the diameter of the cutter which is required to traverse a minimum distance p in order to accommodate the rollers (or dogs) of the ground half coupling.

Dimensions in millimetres (inches)



This diameter and associated firm outline represent the clearance envelope of the hose unit assembly and show the minimum clearance recommended for satisfactory operation.

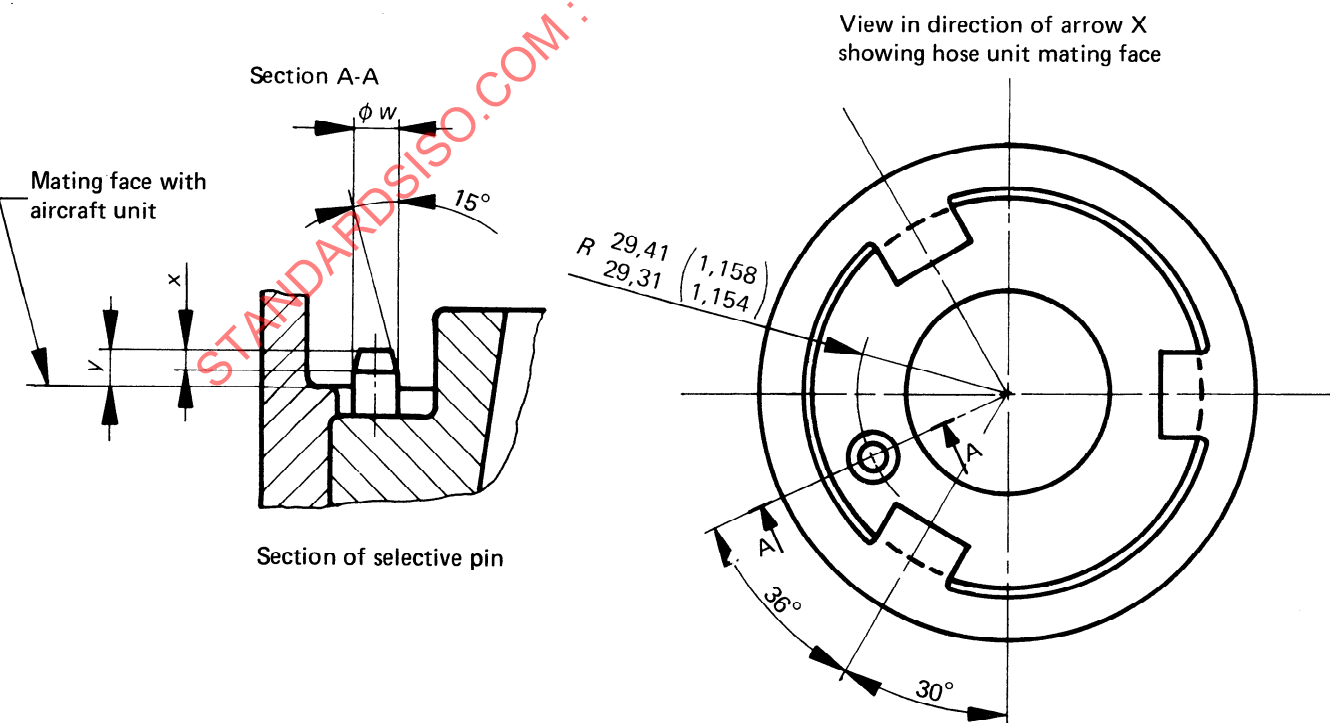


FIGURE 4 — Space envelope and connection detail

Dimension	mm	in	Dimension	mm	in
e_1 max.	23,93	0.942	A min.	203	8
	min.	22,71			
v_2	+ 0,56 ³⁾	+ 0.022	B min.	108	4 1/4
	− 0,41	− 0.016			
w	4,8	3/16	C	41	1 5/8
x	1,6	1/16	D	28,5	1 1/8
y	2,4	3/32	E max.	89	3 1/2

1) Hose unit valve travel (obtained by movement of mechanism within the hose unit).

2) Top of valve to locking flange reference plane, when hose unit valve is closed.

3) Face of valve in closed position may be between 0,56 mm (0,022 in) above and 0,41 mm (0,016 in) below the locking flange reference plane.

Tolerances, unless otherwise stated :

dimensional tolerance = $\pm 0,1$ mm ($\pm 0,005$ in),
angular tolerance = $\pm 0^\circ 15'$.