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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 485

AIRCRAFT WATER-METHANOL PRESSURE CONNECTIONS

1st EDITION
May 1966

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 485, *Aircraft Water-Methanol Pressure Connections*, was drawn up by Technical Committee ISO/TC 20, *Aircraft*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1955 and led, in 1957, to the adoption of a Draft ISO Recommendation.

In October 1960, this Draft ISO Recommendation (No. 409) was circulated to all the ISO Member Bodies for enquiry. It was approved by the following Member Bodies:

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 opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided, in May 1966, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 485 May 1966

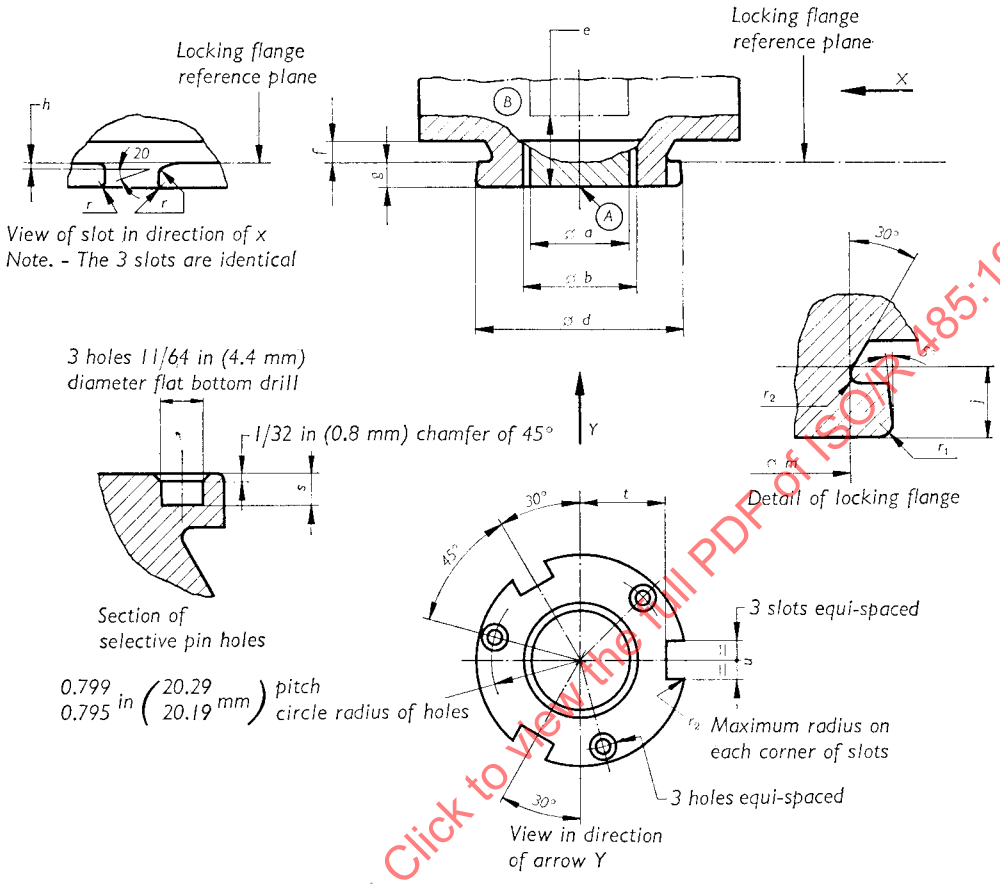
AIRCRAFT WATER-METHANOL PRESSURE CONNECTIONS

CONTENTS

1. CONNECTIONS OF 3/4 in (19 mm)

The dimensions and tolerances of ¾ in (19 mm) aircraft water-methanol pressure connections, suitable for rates of flow up to 25 gal U.K. (114 litres) per minute, should be as shown in Figures 1 and 2 below.

FIG. 1. — **Dimensions and connection detail**



Dimension	inches	millimetres	Dimension	inches	millimetres	Dimension	inches	millimetres
a	0.875 min.	22.22 min.	*g*	0.219 max. 0.217 min.	5.56 max. 5.51 min.	r_1	3/64	1.2
b	1.011 max. 1.006 min.	25.68 max. 25.55 min.	*h*	0.030 max. 0.025 min.	0.76 max. 0.64 min.	r_2	0.020	0.5
d	1.927 max. 1.923 min.	48.95 max. 48.84 min.	*j*	9/32	7.1	*s*	9/64	3.6
e *	0.656 min.	16.7 min.	*m*	1 9/16	39.7	*t*	0.786 max. 0.776 min.	19.96 max. 19.71 min.
f	0.193 min.	4.9 min.	*r*	1/32	0.8	*u*	0.411 max. 0.406 min.	10.44 max. 10.31 min.

* Valve travel.

Tolerances, unless otherwise stated:

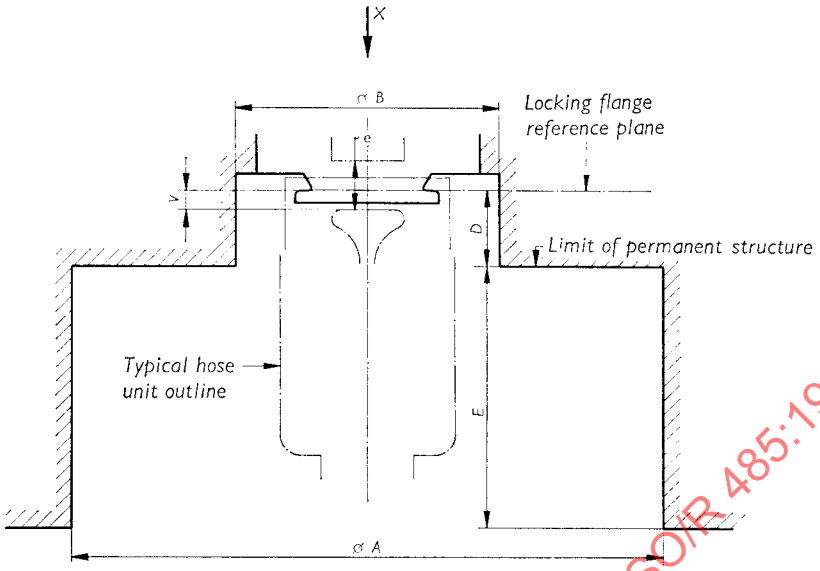
dimensional tolerance = ± 0.005 in (± 0.1 mm),
angular tolerance = ± 0° 15′.

NOTES

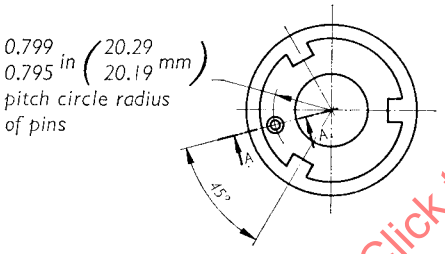
(A) The valve face should be parallel to the locking flange reference plane within this diameter and no part of the valve may extend beyond this face, but it may be recessed up to 0.030 in (0.76 mm) to allow for compressibility of valve seal. Configuration of the valve behind this face is optional.

(B) The valve should be spring loaded. Loading at 0.656 in (16.6 mm) travel should not exceed 10 lbf (4.5 kgf) and loading in the valve shut position should be 3 ½ to 5 lbf (1.6 to 2.3 kgf).

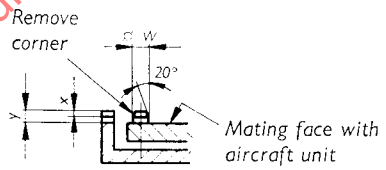
FIG. 2. — **Space envelope and connection detail**



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



View in direction of arrow X showing hose unit mating face



Section of selective pin on A-A

Dimension	inches	millimetres	Dimension	inches	millimetres
e *	0.656 max. 0.632 min.	16.66 max. 16.05 min.	*A*	8 min.	203 min.
y **	+ 0.226 *** — 0.220	+ 5.7 — 5.6	*B*	3 ½ min.	89 min.
w	0.160 max. 0.156 min.	4.06 max. 3.96 min.	*D*	1 max.	25 max.
x	0.047	1.2	*E*	3 ½ max.	89 max.
y	0.125	3.2			

* Hose unit valve travel (obtained by movement of mechanism within the hose unit).
** Top of valve to locking flange reference plane, when hose unit valve is closed.
*** Face of valve in closed position may be between 0.226 in (5.7 mm) above and 0.220 in (5.6 mm) below the locking flange reference plane.

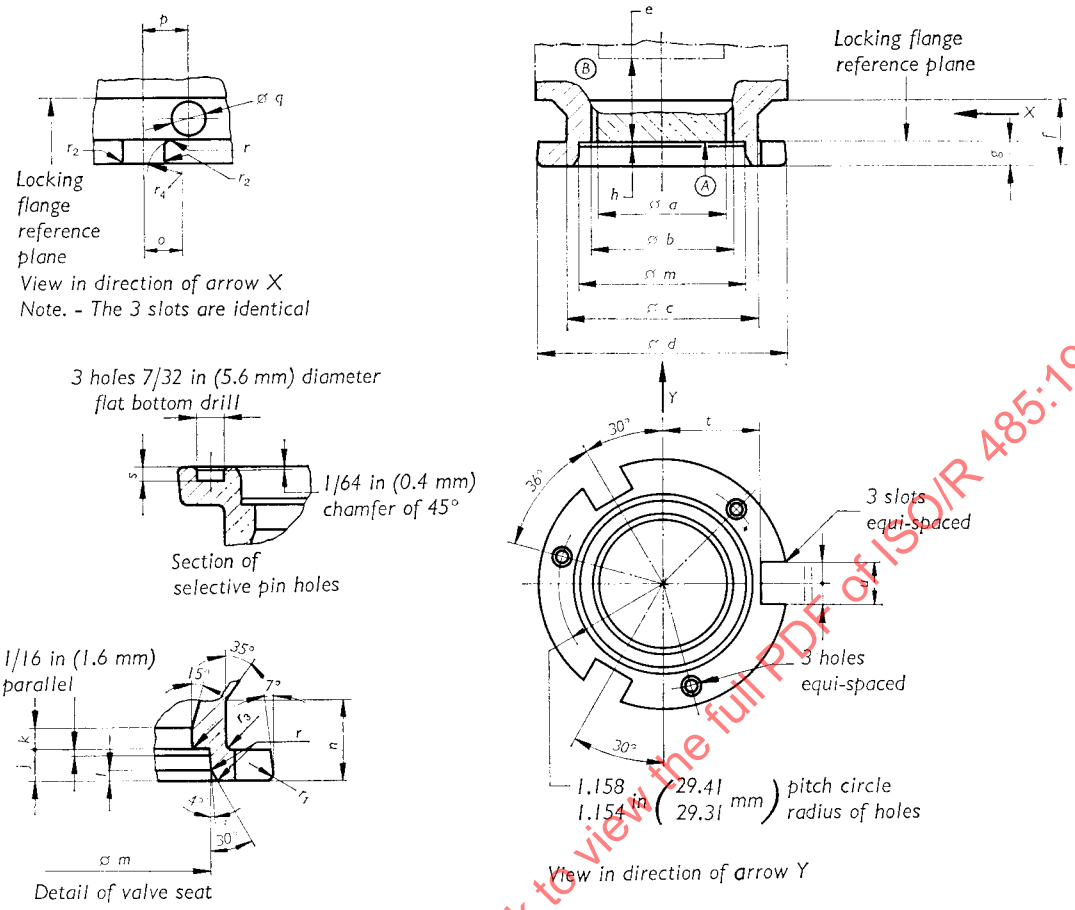
Tolerances, unless otherwise stated:

dimensional tolerance = ± 0.005 in (± 0.1 mm),
angular tolerance = ± 0° 15′.

2. CONNECTIONS OF 1 1/2 in (38 mm)

The dimensions and tolerances of 1½ in (38 mm) aircraft water-methanol pressure connections, suitable for rates of flow up to 120 gal U.K. (546 litres) per minute, should be as shown in Figures 3 and 4 below.

FIG. 3. — **Dimensions and connection detail**



Dimension	inches	millimetres	Dimension	inches	millimetres	Dimension	inches	millimetres
a	1 ½ min.	38.1 min.	*j*	0.284 max. 0.281 min.	7.21 max. 7.13 min.	*r*	1/32	0.8
b	1.627 max. 1.624 min.	41.33 max. 41.25 min.	*k*	5/32	4.0	r_1	3/64	1.2
c	2.156	54.80	*l*	7/64	2.8	r_2	1/16	1.6
d	2.749 max. 2.745 min.	69.8 max. 69.7 min.	*m*	1.904 max. 1.900 min.	48.36 max. 48.26 min.	r_3	5/64	2.0
e *	0.942 min.	24 min.	*n*	5/8	15.9	r_4	0.375	9.5
f	25/32	19.8	*o* **	7/16	11.1	*s*	1/8	3.2
g	0.250 max. 0.248 min.	6.35 max. 6.30 min.	*p* **	1/2	12.7	*t*	$1\ 3/32\ ^{0}_{-0.005}$	$27.8\ ^{0}_{-0.1}$
h	0.295 max. 0.280 min.	7.49 max. 7.11 min.	*q* ***	0.445 max. 0.440 min.	11.28 max. 11.18 min.	*u*	15/32	11.9

* Valve travel.
** Centres.
*** Diameter of cutter.

Tolerances, unless otherwise stated:

dimensional tolerance = ± 0.005 in (± 0.1 mm),
angular tolerance = ± 0° 15′.

NOTES

(A) Configuration of the valve behind this face is optional.

(B) The valve should be spring loaded. Loading at 0.942 in (23.93 mm) travel should not exceed 22 lbf (10 kgf) and loading in the valve shut position should be 9 to 11 lbf (4 to 5 kgf).