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TYRE VALVE COUPLINGS

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NATO LETTER OF PROMULGATION

21 October 2014

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Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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CHAPTER 1 INTRODUCTION

1.1. RELATED DOCUMENTS

1.1.1. NATO Documents

Nil

1.1.2. Non-NATO Documents

1. ISO 4570 TYRE VALVE THREADS

2. ISO 7295 TYRE VALVES FOR AIRCRAFT – INTERCHANGEABILITY DIMENSIONS

3. ISO 20562 TYRE VALVES – ISO CORE CHAMBERS No. 1, No. 2, No. 3 and No. 4

1.2. AIM

The aim of this standard is to standardize tyre valve couplings to facilitate cross-servicing of aircraft.

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CHAPTER 2 REQUIREMENTS

2.1. CONFIGURATION

1. The standard tyre valve, for use on all aircraft tyres, shall be provided at the coupling end with an external thread (designated 8V1) having nominal dimensions of 7.7 mm diameter x 0.794 mm pitch (0.305 in -32 UNS) and an internal core chamber configuration, as shown in Annex A, in accordance with the normal commercial design of the tyre valve manufacturers.

2. The tyre valve shall be fitted with one of the short valve cores or the long valve core shown in Annex B. When the valve core is fitted, the position of the pin head shall be in accordance with Annex A, Figure 2.

2.2. ADDITIONAL REQUIREMENTS

1. A valve sealing cap, as shown in Annex C, shall be used with all aircraft tyre valves.

2. Tyre valve threads shall be in accordance with Annex D.

3. Access clearance dimensions shall be in accordance with Annex E.

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ANNEX A VALVE STEM

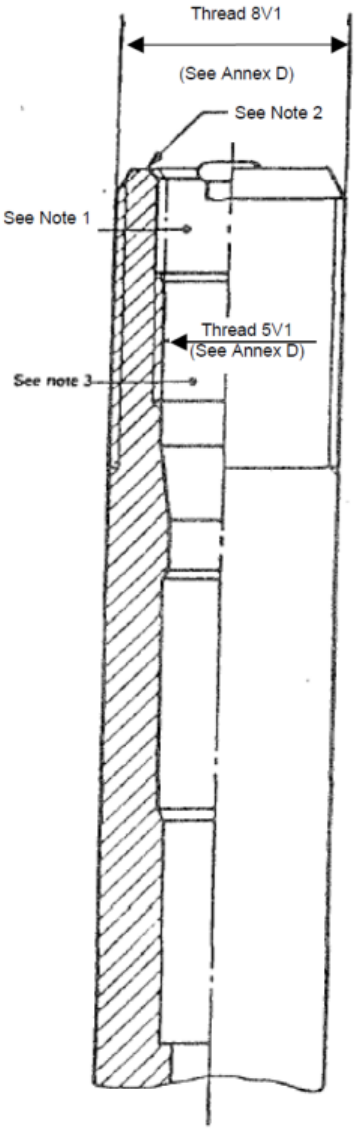
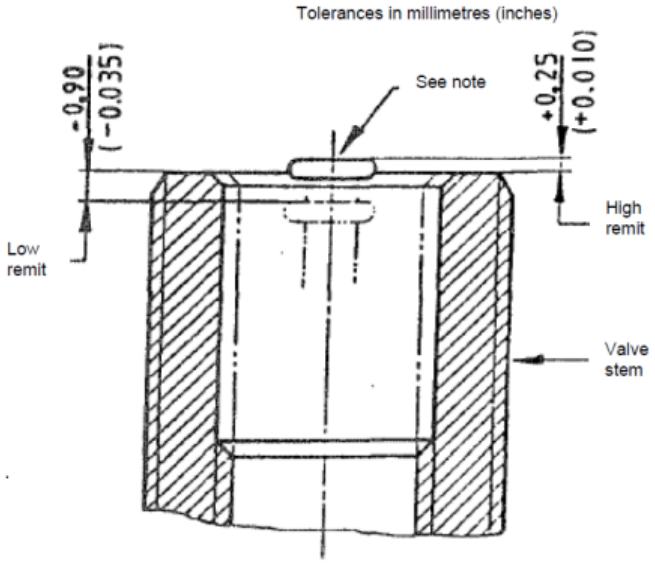


Figure 1 – Valve stem for both short and long cores



NOTE – The pin head shall not be more than 0.25 mm (0.010 in) above or 0.90 mm (0.035 in) below the valve mouth after inserting the core at a torque of:

- 0.17 Nm (24 in ozf) to 0.34 Nm (48 in ozf) for a core with an elastomeric barrel gasket;
- 0.34 Nm (48 in ozf) to 0.54 Nm (76.8 in ozf) for a core with a metallic barrel gasket.

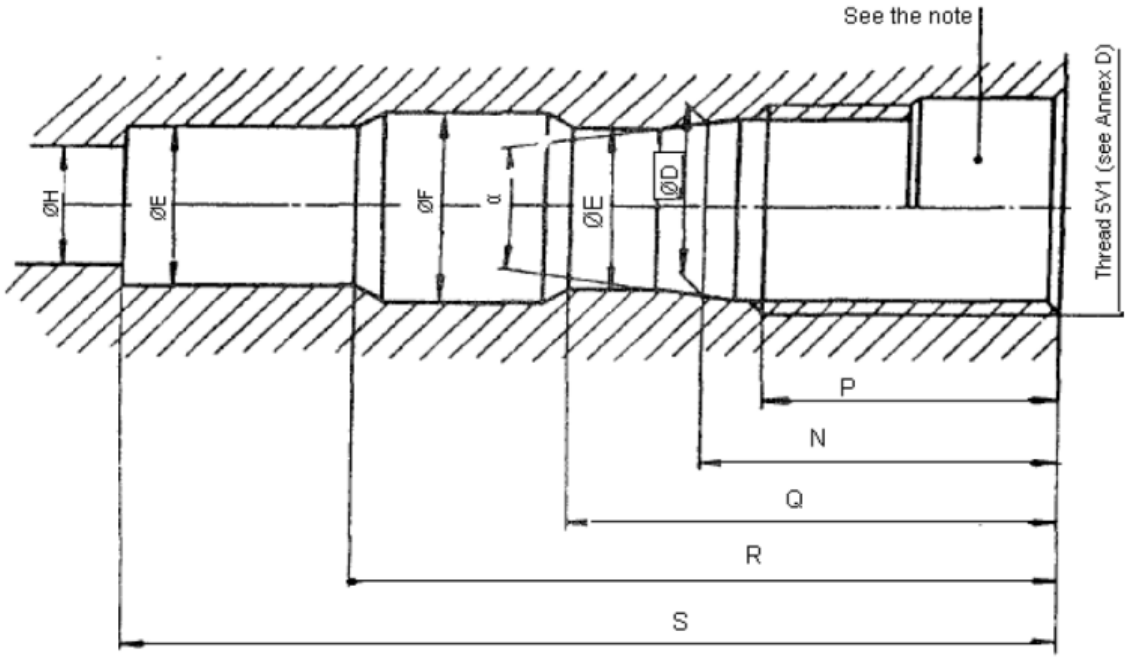
Figure 2 – Core pin head position - Tolerances

NOTES:

1. The counterbore of the valve mouth is optional. (See Figure 4)

2. The surface shall be smooth to effect sealing with the swivel gasket of the valve cap.

3. The valve core chamber shall conform to Figure 3.



NOTE: The counter bore of the valve mouth is optional. The dimensions of this counterbore are given in Figure 4.

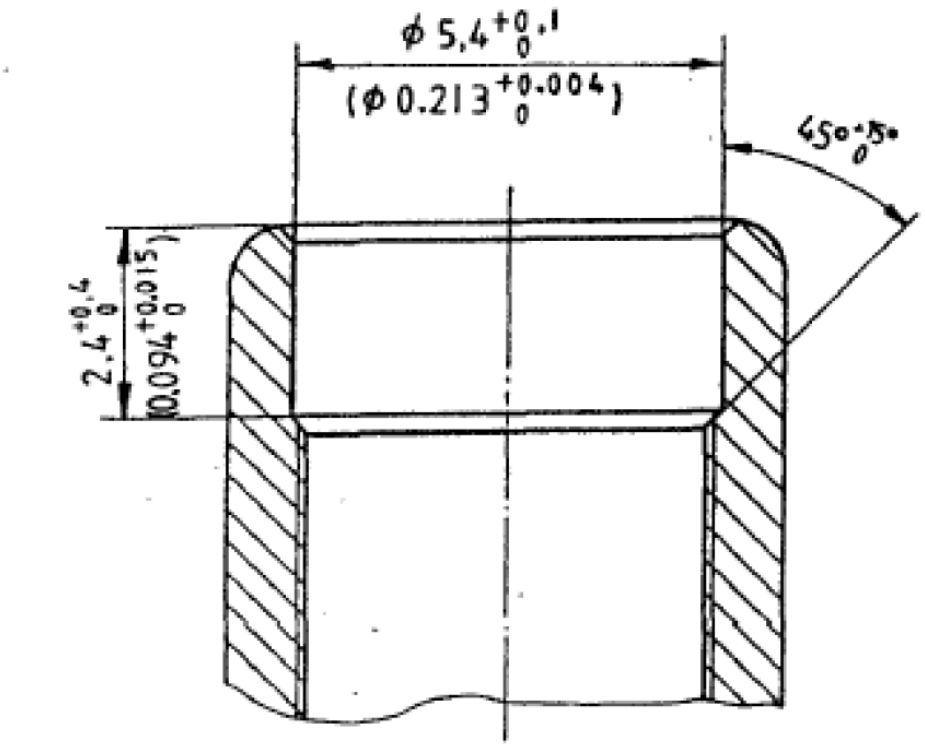
Figure 3 - Core Chamber

Table 1 – Core Chamber Dimensions

Dimensions in millimeters (inches)

	Min	**Max**
D	4,30 (0.170)	
E	3,82 (0.150)	3,94 (0.155)
F	4,27 (0.168)	4,70 (0.185)
H	-	3,20 (0.126)
N	10,00 (0.394)	10,40 (0.409
P	7,80 (0.307)	8,60 (0.339)
Q	13,50 (0.531)	14,50 (0.571)
R	22,70 (0.894)	25,00 (0.984)
S	30,50 (1.201)	31,00 (1.220)
α	16º	18 º

Dimensions in millimeters (inches)



Note: The Counterbore of the valve mouth is optional

Figure 4 – Counterbore Dimensions

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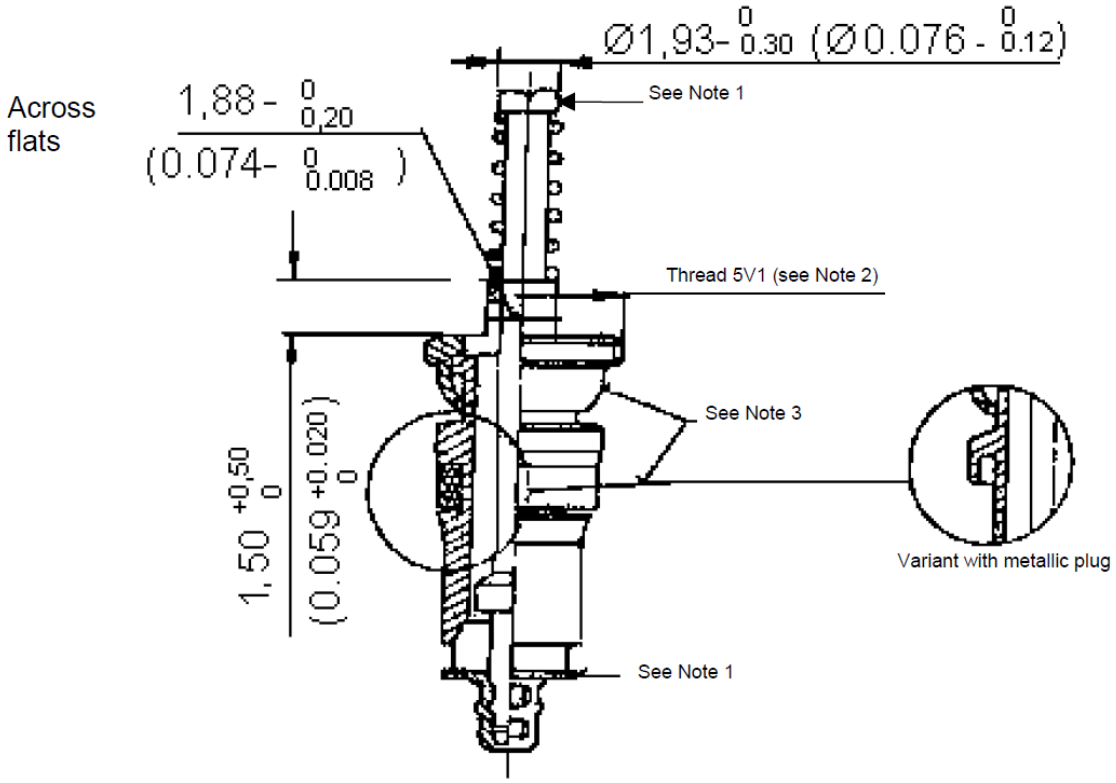
ANNEX B VALVE CORES

Dimensions in millimeters (inches)



NOTES:

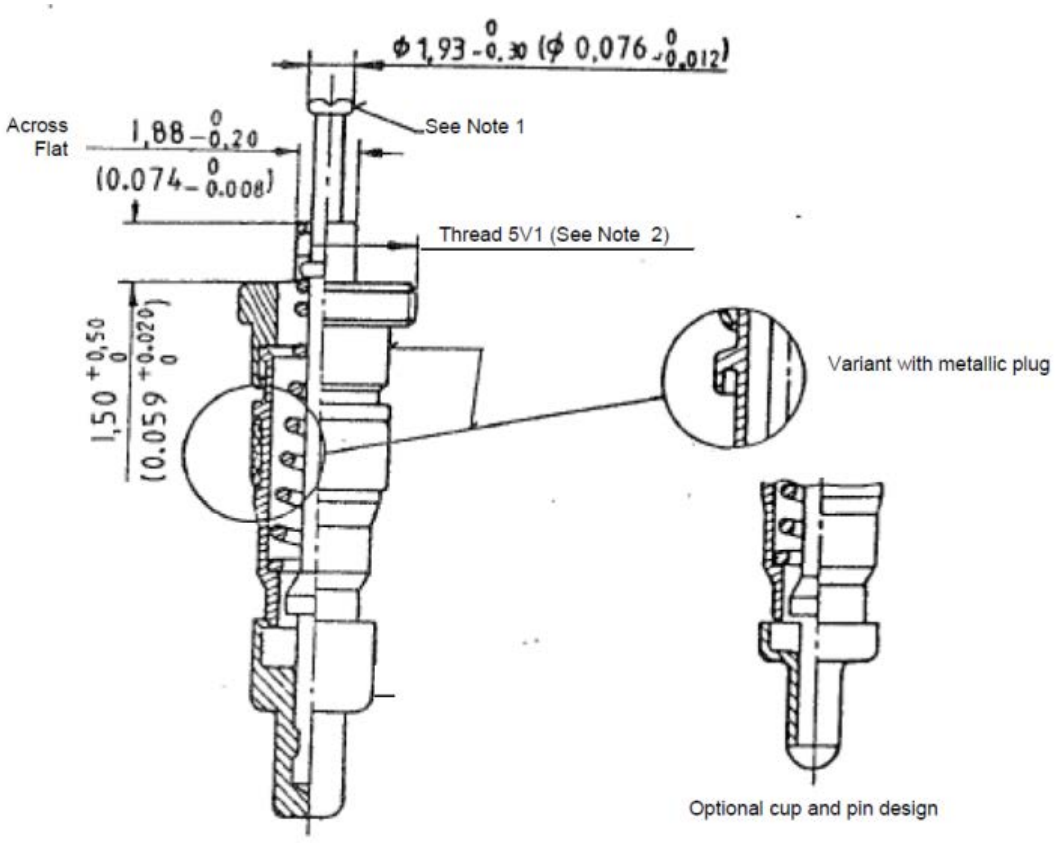
1. Aircraft valve cores shall be identified by a brass or copper-coloured core pin with a groove in the pin head and by a brass or copper-coloured plunger cup.

2. For cores with less than four threads, apply “exception a)” of Annex D to the 5V1 thread.

3. The swivel shall be rotatable in relation to the barrel.

Figure 5 – Short Core with Outside Spring

Dimensions in millimeters (inches)



NOTES:

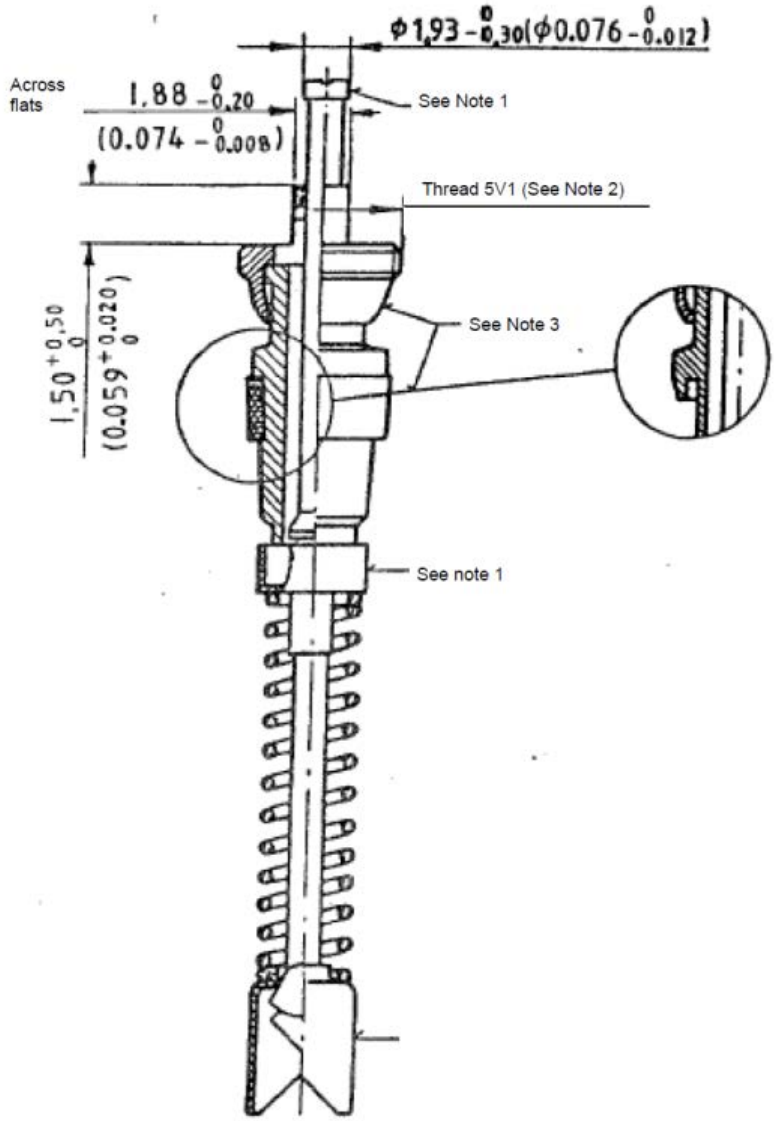
1. Aircraft valve cores shall be identified by a brass or copper-coloured core pin with a groove in the pin head and by a brass or copper-coloured plunger cup.

2. For cores with less than four threads, apply “exception a)” of Annex D to the 5V1 thread.

3. The swivel shall be rotatable in relation to the barrel.

Figure 6 – Short Core with Inside Spring

Dimensions in millimeters (inches)



NOTES:

1. Aircraft valve cores shall be identified by a brass or copper-coloured core pin with a groove in the pin head and by a brass or copper-coloured plunger cup.

2. For cores with less than four threads, apply “exception a)” of Annex D to the 5V1 thread.

3. The swivel shall be rotatable in relation to the barrel.

4. The spring cup of the long core is optional in configuration. However, it shall fit the core chamber (ØE) of the aircraft tyre valve as defined in Annex A. Figure 3.

Figure 7 – Long Core

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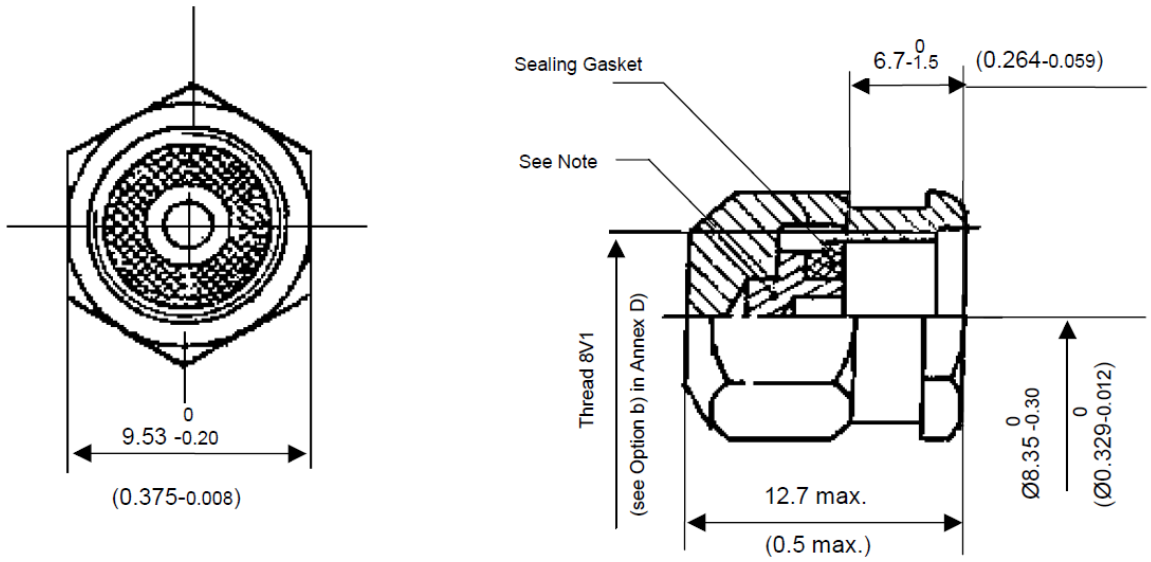
ANNEX C VALVE CAP

Dimensions in millimeters (inches)



NOTE: The valve cap shall be fitted with a sealing gasket.

Figure 8 – Valve Cap

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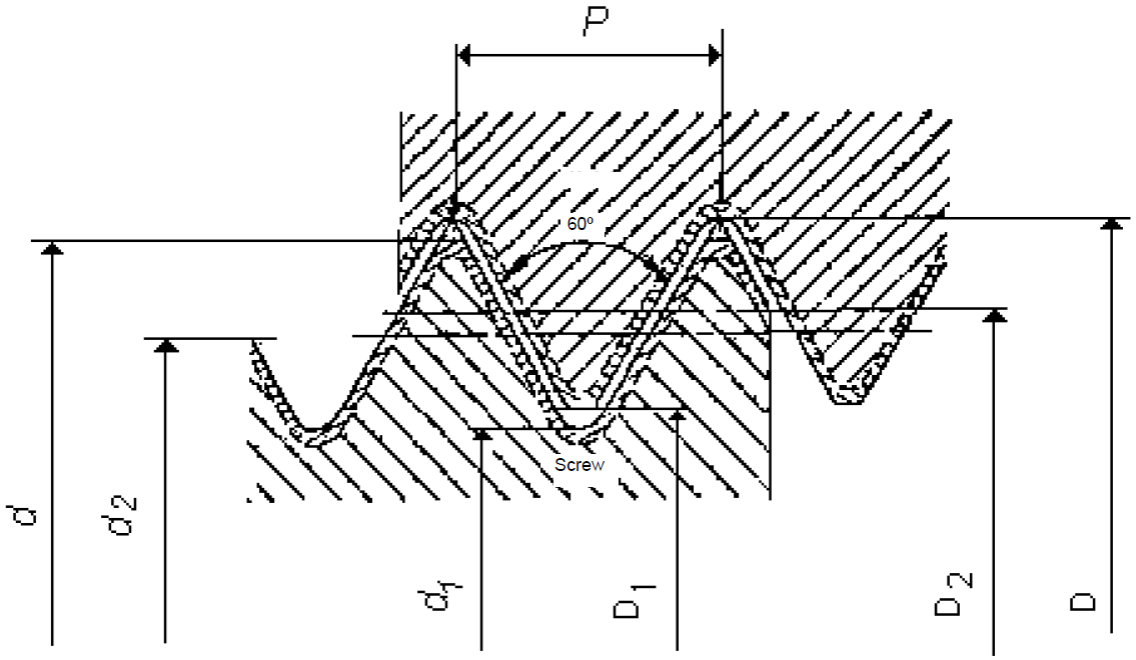
ANNEX D THREAD DETAILS



P Pitch
D Major Diameter
D_2 Pitch Diameter
D_1 Minor Diameter
} Nut
d Major Diameter
d_2 Pitch Diameter
d_1 Minor Diameter
} Screw

Figure 9 – Tyre Valve Threads – Basic Plan

TABLE 2 – THREAD DIMENSIONS

Dimensions in millimetres (inches)

Designation	Screw								Nut						
	Nominal dimensions Diameter x Pitch (Diameter x tpi)	Major Diameter d			Pitch diameter d_2			Minor dia-meter d_1	Major dia-Meter D	Pitch diameter D_2			Minor diameter D_1		
		max.	tol. T_d	min.	max	tol. Td_2	min.	max.	min.	max.	tol. TD_2	min.	max.	tol TD_1	min.
5 V 1	5,2 x 0,705 (0.201 -36 UHS)	5,232 (0.206)	0,203 (0.008)	5,029a) (0.198)a)	4,775 (0.188)	0,101 (0.004)	4,674 (0.184)	4,496 (0.177)	5,334 (0.210)	5,004 (0.197)	0,135 (0.005)	4,869 (0.192)	4,801 (0.189)	0,204 (0.008)	4,597 (0.181)
8 V 1	7,7 x 0,794 (0.305-32 UNS)	7,747 (0.305)	0,203 (0.008)	7,544 (0.297)	7,239 (0.285)	0,159 (0.006)	7,080 (0.279)	6,909 (0.272)	7,798 (0.307)	7,468 b) (0.294)b)	0,184 (0.007)	7,284 (0.287)	7,239 (0.285)	0,203 (0.008)	7,036 (0.277)

NOTE - When technical considerations permit or require, the following exceptions shall apply:

a) 5,080 (0.207)
b) 7,400 (0.302)
} instead of {
5,029 (0.198)
7,468 (0.294)

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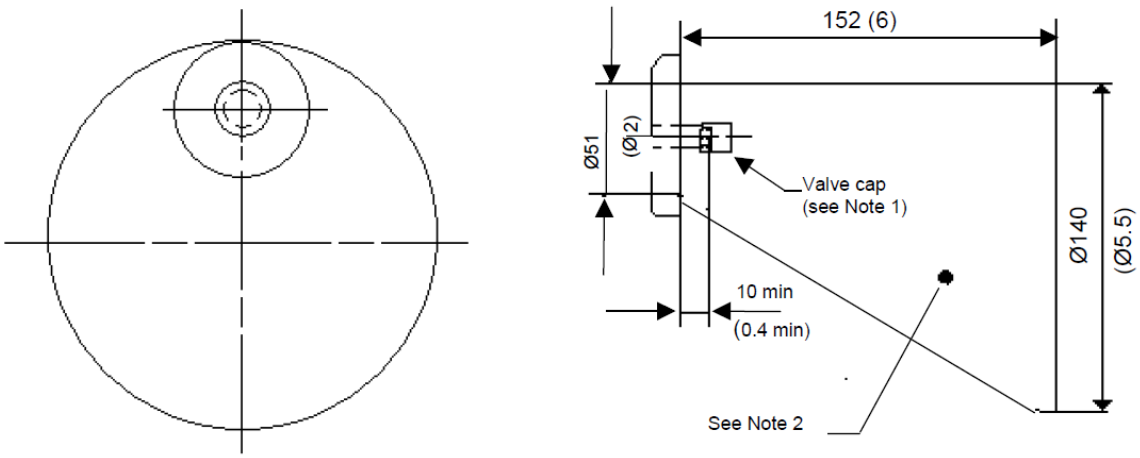
ANNEX E ACCESS CLEARANCE

Dimensions in millimeters (inches)



NOTES:

1. Valve complete with caps shall not project beyond the width of the wheel.

2. To ensure free access to the valve with arctic gloves for ground inflation no obstruction by any part of the wheel or aircraft shall be allowed to encroach within the envelope shown above.

Figure 10 – Dimensions of Access Space to Valve Mouth

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