इंटरनेट मानक

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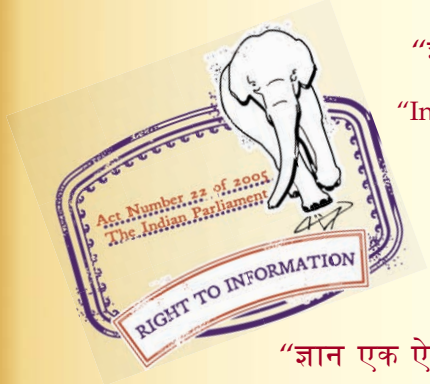
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 8737 (1995): Valve fittings for use with liquefied petroleum gas (LPG) cylinders of more than 5 litre water capacity [MED 16: Gas Cylinders]



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Satyanarayan Gangaram Pitroda
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"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS 8737 : 1995
(Reaffirmed 2006)

भारतीय मानक

5-लीटर से अधिक पानी की क्षमता वाले द्रवित पैट्रोलियम गैस (द्र पै गै) सिलिंडरों के उपयोग के लिए वाल्व फिटिंगें — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

VALVE FITTINGS FOR USE WITH LIQUEFIED PETROLEUM GAS (LPG) CYLINDERS OF MORE THAN 5-LITRE WATER CAPACITY — SPECIFICATION

(First Revision)

First Reprint MAY 1998

ICS 23·060·40; 23·020·30

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

October 1995

Price Group 5

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Gas Cylinders Sectional Committee had been approved by the Heavy Mechanical Engineering Division Council.

Manufacture, possession and use of any gas when contained in cylinders in compressed or liquefied state is regulated under the *Gas Cylinder Rules*, 1981, of the Government of India as amended from time to time. This specification has been prepared in consultation and agreement with the statutory authorities under those rules.

The Bureau has already published IS 3224 : 1979 'Specification for valves fittings for compressed gas cylinders excluding LPG cylinders (*second revision*)' and IS 7302 : 1974 'Valve fittings for gas cylinder valves for use with breathing apparatus' which cover the valve fittings for various compressed gases contained in cylinders. Since the cylinders for liquefied petroleum gas (LPG), is mainly used by housewives for cooking, it was felt necessary to have a separate standard for LPG valves for cylinders used in domestic service, having an in-built safety arrangement so that the housewife or the domestic user would not commit a mistake which could lead to an accident by fire and/or loss of life and property.

This standard was published in 1978 in two parts. Part 1 covered valve fittings which may be used with old LPG cylinders for replacement purposes. Part 2 covered valve fittings for newly manufactured LPG cylinders. Oil industry is using only self locking and self closing valves for LPG cylinders. Earlier, 'F' type valves were used and were to be replaced by self closing valves. When the replacement was completed, Part 1 of this standard was not used any more. Hence, Part 1 of this standard was withdrawn and Part 2 was redesignated as IS 8737.

In this standard, more emphasis is laid on construction and safety requirements of valve fittings, keeping in view the practice of handling of cylinders in the country. This revision includes the method of checking the thread requirements. The requirements for valving capsule have been omitted as they were not used at present. Sampling plan for evaluation of mechanical properties of valve blanks has been modified.

In the preparation of this standard, assistance has been derived from the following standards:

ANSI/CGA V-1-1987, Compressed gas cylinder valve outlet and inlet connections. American National Standards Institute.

BS 341 : Part 1 : 1991 Transportable gas container valve Part 1. Specification for industrial valves for working pressure up to and including 300 bar. British Standards Institution.

DIN 477 Teil 10590 Gasflaschenventile für Prüfdrücke bis 300 bar; Bauformen, Bauma β_e, Anschlüsse, Gewinde (Gas cylinder valves rated for test pressure up to 300 bar; types, sizes and outlets). Deutsches Institut für Normung (Germany).

SMS 2238 1989-10-18 Gas cylinders — Valve outlets. Sveriges Standardiseringskommission (Sweden).

SMS 2264 1989-03-08 Gas cylinders — Valves for liquefied pertroleum gas — Filling weight from 5 kg. Sveriges Standardiseringskommission (Sweden).

In view of the introduction on International System (SI) units in the country, the relevant SI units and the corresponding conversion factors are given below for guidance:

1 kgf/cm^2 = 98·066 5 kPa (kilopascal)
= 0·098 066 5 MPa (megapascal)
= 0·980 665 bar

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

VALVE FITTINGS FOR USE WITH LIQUEFIED PETROLEUM GAS (LPG) CYLINDERS OF MORE THAN 5-LITRE WATER CAPACITY — SPECIFICATION

(First Revision)

1 SCOPE

1.1 This standard covers the basic requirements of material and dimensions of valve fittings for gas cylinders of more than 5-litre water capacity, for liquefied petroleum gas (LPG). It covers valves with taper stems only.

1.2 Valve fittings for LPG cylinders of water capacity up to 5 litres are covered in a separate standard IS 8776 : 1988 'Valve fittings for use with LPG cylinder up to and including 5 litre water capacity (*first revision*)'.

2 REFERENCES

The following standards are necessary adjuncts to this standard:

IS No.	*Title*
1598 : 1977	Methods for Izod impact test for metals (*first revision*)
1608 : 1972	Methods of tensile testing of steel products (*first revision*)
1816 : 1979	Methods of tensile test for light metals and their alloys (*first revision*)
2102 (Part 1) : 1980	General tolerances for dimenions and form and position : Part 1 General tolerances for linear and angular dimensions (*second revision*)
2654 : 1977	Method of tensile testing of copper and copper alloy tubes (*first revision*)
4905 : 1968	Methods of random sampling
7202 : 1974	Inspection gauges for checking threads of gas cylinder valves for use with breathing apparatus
9121 : 1979	Inspection gauges for checking type 1 (size 2) taper threads of gas cylinders valves, taper 1 in 16
9798 : 1995	Low pressure regulators for use with liquefied petroleum gas (LPG) mixtures — Specification (*first revision*).

3 MATERIAL

3.1 All components used in valve construction shall be made of material compatible with LPG and with the material of the cylinder. The material of the valve body shall comply with the properties given in **3.2**, **3.3** and **3.4**.

3.2 Valve body shall be forged from wrought or extruded sections.

3.3 Tensile Strength and Elongation

3.3.1 The tensile strength and elongation of the material of valve body determined according to IS 1608 : 1972, IS 1816 : 1979 and IS 2654 : 1977 shall be respectively at least 392 N/mm^2 (40 kgf/mm^2) and 18 percent measured on a gauge length $5{\cdot}65\sqrt{S_o}$, S_o being the original area of cross section.

3.3.2 During the tensile test, if a specimen breaks outside the gauge length and has not registered elongation mentioned under **3.3.1**, the specimen shall be ignored and not treated as having failed.

3.4 Impact Strength

The Izod impact strength of the material of valve body determined according to IS 1598 : 1977 or other applicable specifications shall not be less than 21·5 N.m (2·2 kg.m) for brass, manganese bronze or aluminium bronze.

3.5 Test Samples

Test samples for tensile and Izod impact tests shall, where practicable, be taken from a valve

body blank; where this is not practicable, the test sample shall be made from the same raw material (wrought or extruded section) giving the same outside shape as the valve body blanks it represents. The scale of sampling and criteria for conformity shall be in accordance with the requirements of Annex A, unless otherwise agreed between the manufacturer and the purchaser.

4 SCREW THREADS ON THE VALVE STEM AND IN CYLINDER NECK (VALVE INLET THREADS)

4.1 The valve inlet shall be provided with any of the two types of taper screw threads specified in **4.1.1** or **4.1.2.**

4.1.1 *Type 1 Threads*

The valve inlet shall have a taper of 1 in 16 on diameter. The basic thread form, the principle dimensions and limits on crest and root truncation are shown in Fig. 1, 2 and 3 respectively. Thread checking shall be carried out according to Annex A of IS 9121 : 1979.

NOTE — This type of thread also conforms to thread size 3/4"-14 NGT of ANSI/CGA V-1-1987 'Compressed gas cylinder valve outlet and inlet connections'. American National Standards Institute.

4.1.1.1 *Limits on size*

Final inspection limits on size (pitch diameter) of both external and internal threads are ± one turn from basic, although the preferred working limits are ± ½ turn from basic.

4.1.1.2 *Limits on taper*

a) The taper on the pitch elements of *external* threads shall be 1 in 16 on diameter, with a minus tolerance of one turn, but no plus tolerance in gauging.

b) The taper on the pitch elements of *internal* threads shall be 1 in 16 on diameter, with a plus tolerance of one turn but no minus tolerance in gauging.

4.1.1.3 The tolerance on 60° angle of threads shall be ± 2°.

4.1.1.4 The tolerance on lead in the length of effective threads shall be ± 0·076 2 mm valid for any size threaded to an effective thread length greater than 25·4 mm.

4.1.1.5 The maximum taper on pitch line per millimetre shall be 0·072 9 and the minimum 0·052.

4.1.2 *Type 4 Threads*

The valve inlet shall have taper of 1 in 8 on diameter. The basic form, principle dimensions and their limits are given in Fig. 4 and Table 1. Thread checking shall be carried out according to IS 7202 : 1974.

NOTE — This type of thread also conforms to thread size 18·16 mm (0·715") nominal of BS 341 : Part 1 : 1991 'Transportable gas container valve : Part 1 Specification for industrial valves for working pressure up to and including 300 bar'. British Standards Institution.

5 VALVE OUTLET CONNECTIONS

5.1 The valve if provided with a threaded outlet connection, it shall have parallel left-hand external threads conforming to Systems International threads with a pitch of 1·814 mm and a thread angle of 60°. The general dimensions of valve outlet threads are shown in Fig. 5.

5.2 When the arrangement of self-sealing mechanism is provided at the outlet (*see* **6.4**), the particulars of such arrangement including the dimensions of connector and rubber washer shall be as agreed between the purchaser and the manufacturer. However, the dimensions of the connecting nut which may be used on the regulator or other connections shall be in accordance with Fig. 6.

6 TYPES OF VALVES AND THEIR MINIMUM CONSTRUCTIONAL REQUIREMENTS

6.1 All the valves shall have taper inlet threads only.

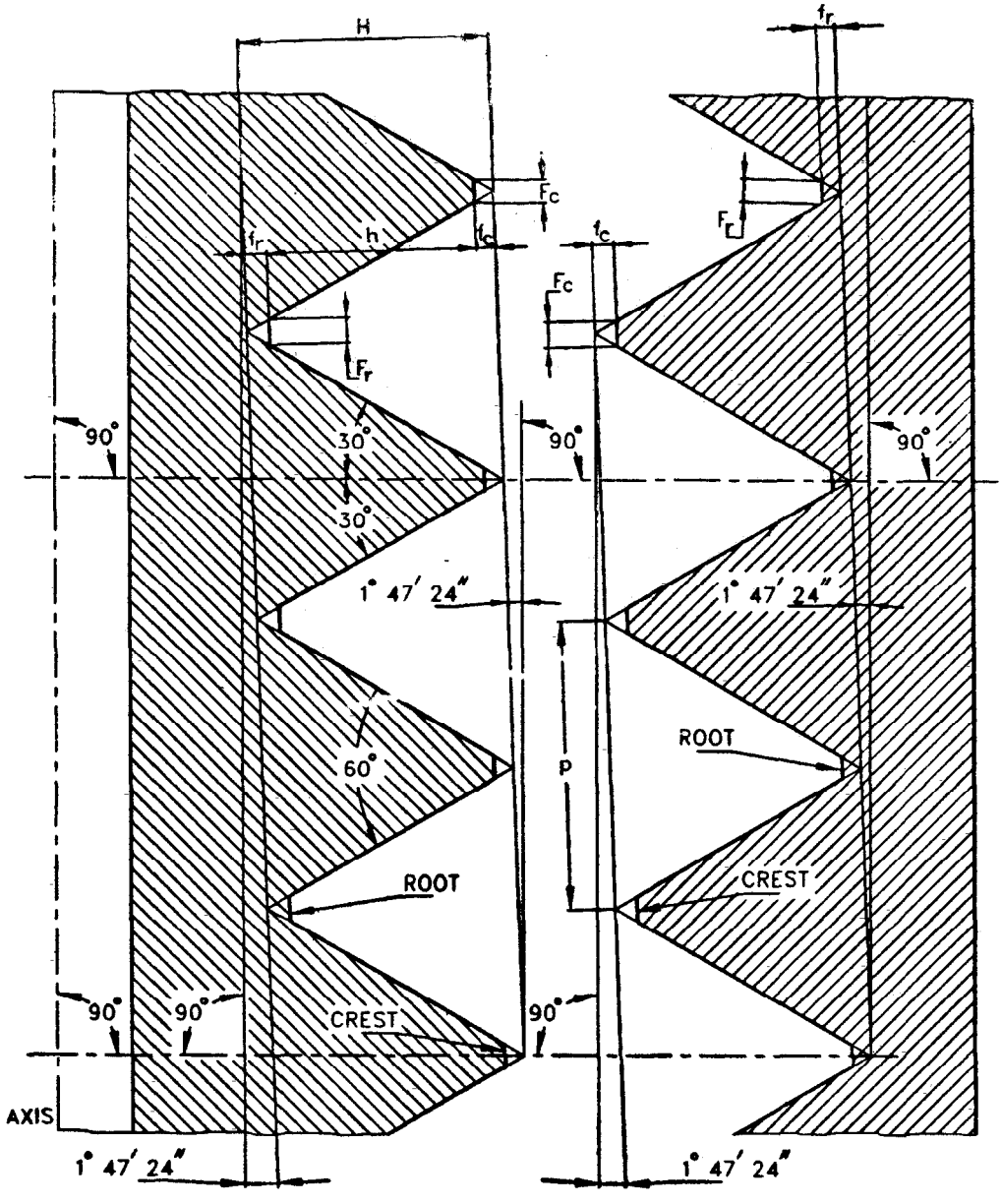
6.2 Valve outlet may be at any angle easily accessible for connection.

6.3 In case the valves are operated by means of rotating spindles, the spindles shall close the valves by clockwise rotation. Valve spindle may be at any angle to the inlet threads but it shall be easily accessible for closing and opening.

6.4 Only valves with self-sealing mechanism shall be used. In case the valve is operated by handwheel mechanism, a device shall be provided to shut off the gas flow when the connection on the outlet is removed. Such a device shall be effective even if the valve is in open position.

6.5 Handwheel or actuating lever, wherever provided, shall be clearly marked with 'Open' and 'Close' positions in words and figures.

6.6 All valves with threaded outlet connections shall be provided with metallic security nuts to prevent damage to threads and leakage of gas. All valves without threaded outlet connections shall be provided with security caps made of metal or high grade unbreakable plastic such as nylon, PTFE, high density polyethylene, etc.



EXTERNAL THREAD INTERNAL THREAD

Pitch measured parallel to axis, p = 1·814 mm

Thread angle 60° normal to the axis

Taper 1 in 16 measured on the diameter along the axis

H = 0·866 025 p — height of 60° sharp V thread = 1·571 22 mm

h = 0·800 000 p = height of thread on product = 1·451 43 mm

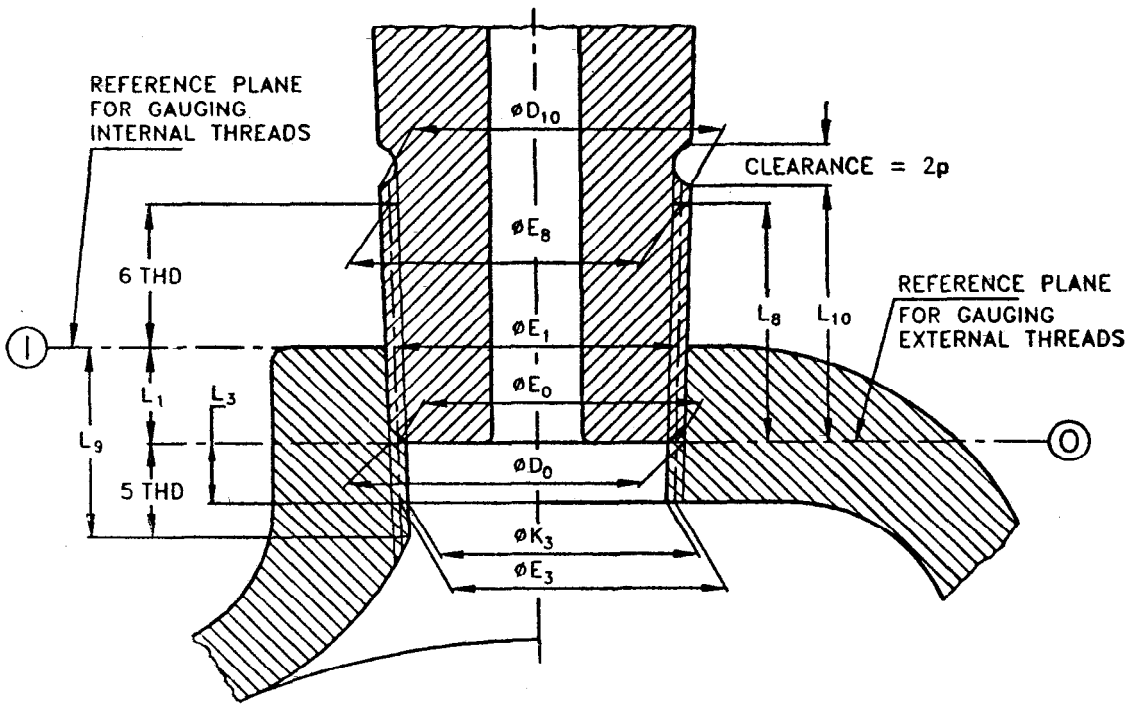
f_c* = depth of truncation at crest, f_r* = depth of truncation at root

F_c* = width of flat at crest, F_r* = width of flat at root

NOTE — The thread is same as 3/4″ − 14 National Gas Taper (NGT) threads of ANSI/CGA V-1-1987

FIG. 1 BASIC THREAD FORM OF TYPE 1 TAPER SCREW THREADS

*For limits *see* Fig. 3.



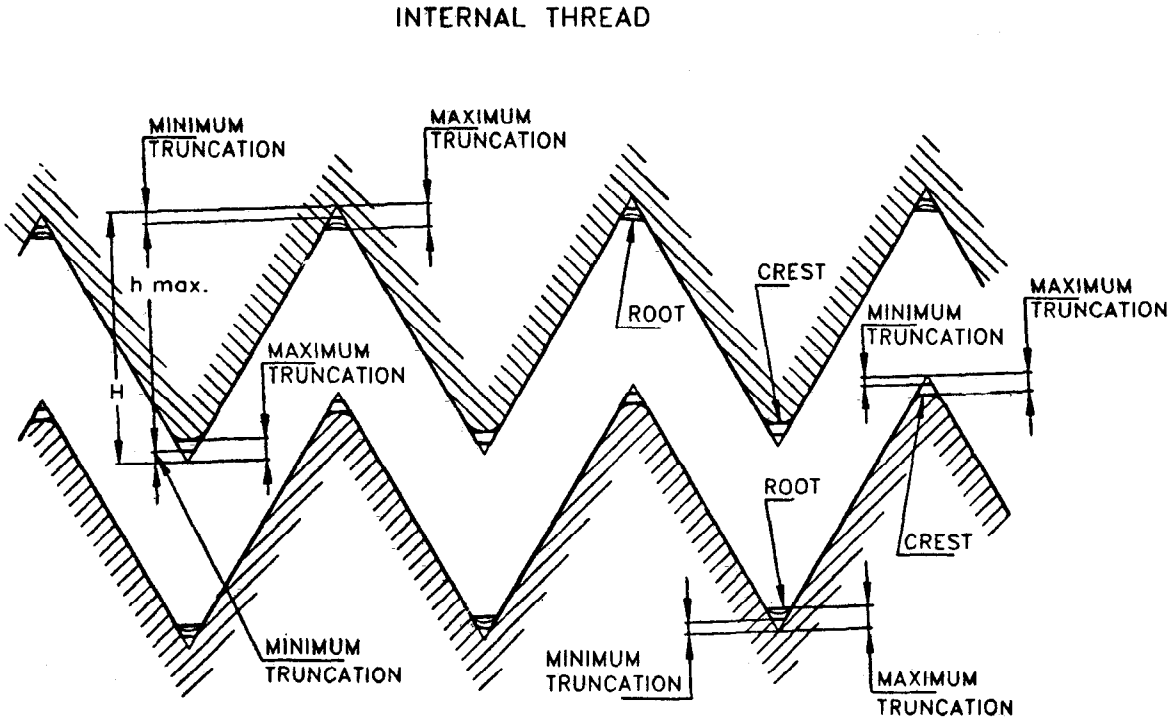
STYLE A
TYPICAL NECK OF
DRAWN CYLINDER

STYLE B
TYPICAL LOW
PRESSURE CYLINDER

D = Major diameter
D_0 = 26·03
D_{10} = 27·42
E = Pitch diameter
E_0 = 24·58
E_1 = 25·118
E_3 = 24·24
E_8 = 25·798
K = Minor diameter
K_3 = 22·79
L_1 = Standard handtight engagement
= 8.611
L_3 = 3 threads (for wrenching)
$L_1 + L_3$ = 14·05
L_8 = Length of full external threads
= 19·497
L_9 = Length of full roots (minimum) on internal threads
= 17·681
L_{10} = Overall length of external threads (approx)
= 23
Diameter at small end of the valve after chamfer = 23

All dimensions in millimetres.

FIG. 2 DIMENSIONS FOR TYPE 1 TAPER SCREW THREADS ON VALVE STEMS AND IN CYLINDER NECKS



p = Pitch = 1·814

H = Height of sharp V thread = 0·866 025 p = 1·571 22

h = Height of thread on product = 1·451 4 *Max*
= 1·288 0 *Min*

f = Truncation on crest and root
f_{Min} = 0·033 p = 0·059 87
f_{Max} = 0·078 p = 0·141 51
Tolerance = 0·081 64

F = Equivalent width of flat
F_{Min} = 0·038 p = 0·068 94
F_{Max} = 0·090 p = 0·163 29
Tolerance = 0·094 35

All dimensions in millimetres.

FIG. 3 LIMITS ON CREST AND ROOT TRUNCATION OF TYPE 1 TAPER SCREW THREADS

6.7 The general machining tolerances unless otherwise stated shall be of medium class specified in IS 2102 (Part 1) : 1980.

6.8 All rubber and other moulded parts coming in contact with LPG in the construction of the valve shall be compatible with LPG, when tested according to Annex C of IS 9798 : 1995. All rubber and other moulded parts shall be suitable for extreme climatic conditions in which the valve is likely to be used, the range of temperature being −20°C to +65°C. The method of test shall be according to Annex F of IS 9798 : 1995.

6.9 Valve with gland packing shall not be used.

6.10 The minimum finished wall thickness at any portion of the valve shall not be less than 2·5 mm. However, this requirement shall be relaxed in the case of sections not susceptible to tamper, damage or rupture during use, or where any damage or rupture to the section will not effect the sealing off, of the valve.

Table 1 Principal Dimensions and Limits for Type 4 Taper Screw Threads of Nominal Size 18·16 mm

(*Clause* 4.1.2 *read with Fig.* 4)

Form of Thread	Whitworth, Right-Hand Normal to the Surface of Cone, Thread Angle 55°
Nominal size of valve	18·16 mm
Taper on diameter	1 in 8
Pitch measured along cone	1·814 mm
Diameter of thread on valve stem at small end, A	
Major diameter	18·160 *Max* 17·958 *Min*
Pitch diameter	16·998 *Max* 16·863 *Min*
Minor diameter	15·834 *Max* 15·563 *Min*
Diameter of thread at mouth of cylinder, C	
Major diameter	20·414 *Max* 20·142 *Min*
Pitch diameter	19·114 *Max* 18·979 *Min*
Minor diameter	18·019 *Max* 17·816 *Min*
Length of thread, *B*	$22{\cdot}23\ ^{+3{\cdot}17}_{-0}$
Length of engagement	15·88 mm *Min*
Length of thread in cylinder neck, *D*	22·23 mm *Min*

7 SAFETY REQUIREMENTS

7.1 All valves for commercial butane [vapour pressure up to 1 666 kPa (17 kgf/cm²) at 65°C] may be without safety relief valve.

7.2 All valves for commercial propane [vapour pressure exceeding 1 666 kPa (17 kgf/cm²) at 65°C] shall have in-built pressure relief valve set for the design pressure of the cylinder.

8 TESTS

8.1 Hydrostatic Tests

Representative samples of machined valve bodies, before assembly, shall be subjected to a hydrostatic test at 1·5 times the maximum working pressure at which it is envisaged that valve will be used. The scale of sampling and the criteria of conformity shall be the same as that adopted for the tensile strength and elongation test or the Izod impact test as given in **3.5**, unless otherwise agreed between the manufacturer and the purchaser.

8.2 Pneumatic Test

Each assembled valve shall be subjected to pneumatic proof tests at pressures specified in **8.2.1**, **8.2.2** and **8.2.3** and checked for shut off and leak tightness/soundness (test period 15 seconds). The valve shall be considered to be leak tight if the leakage rate does not exceed 4 N mm³/s. (The symbol 'N' indicates conversion to normal temperature pressure condition, NTP that is 760 mm Hg pressure and 0°C temperature.) For conducting the pneumatic proof tests under **8.2.1** ,**8.2.2** and **8.2.3** on assembled valves, test set-ups with pressure differentio-meters, bubble leak detectors or such appropriate devices shall be used to detect and/or measure leakages. Use of water or any other liquid medium likely to enter the assembled valve shall be strictly avoided.

In case of valves operated with handwheels the closing torque shall not exceed 12 N.m (1·2 kg.m).

8.2.1 *Tightness of Joint Packing (in Valve Outlet) and Valve Spindle*

With valve spindle in closed position a test pressure of 1 000 mm water column shall be applied from the outlet of the valve assembly by means of a tool. The tool shall make a leak-proof joint with the sealing surface of the joint packing.

8.2.2 *Tightness of Valve Spindle and Valve Housing*

This test shall be carried out with valve spindle in closed position. A test pressure not less than the maximum working pressure shall be applied to the inlet of the valve housing (body).

8.2.3 *Tightness of Joint Packing and Housing*

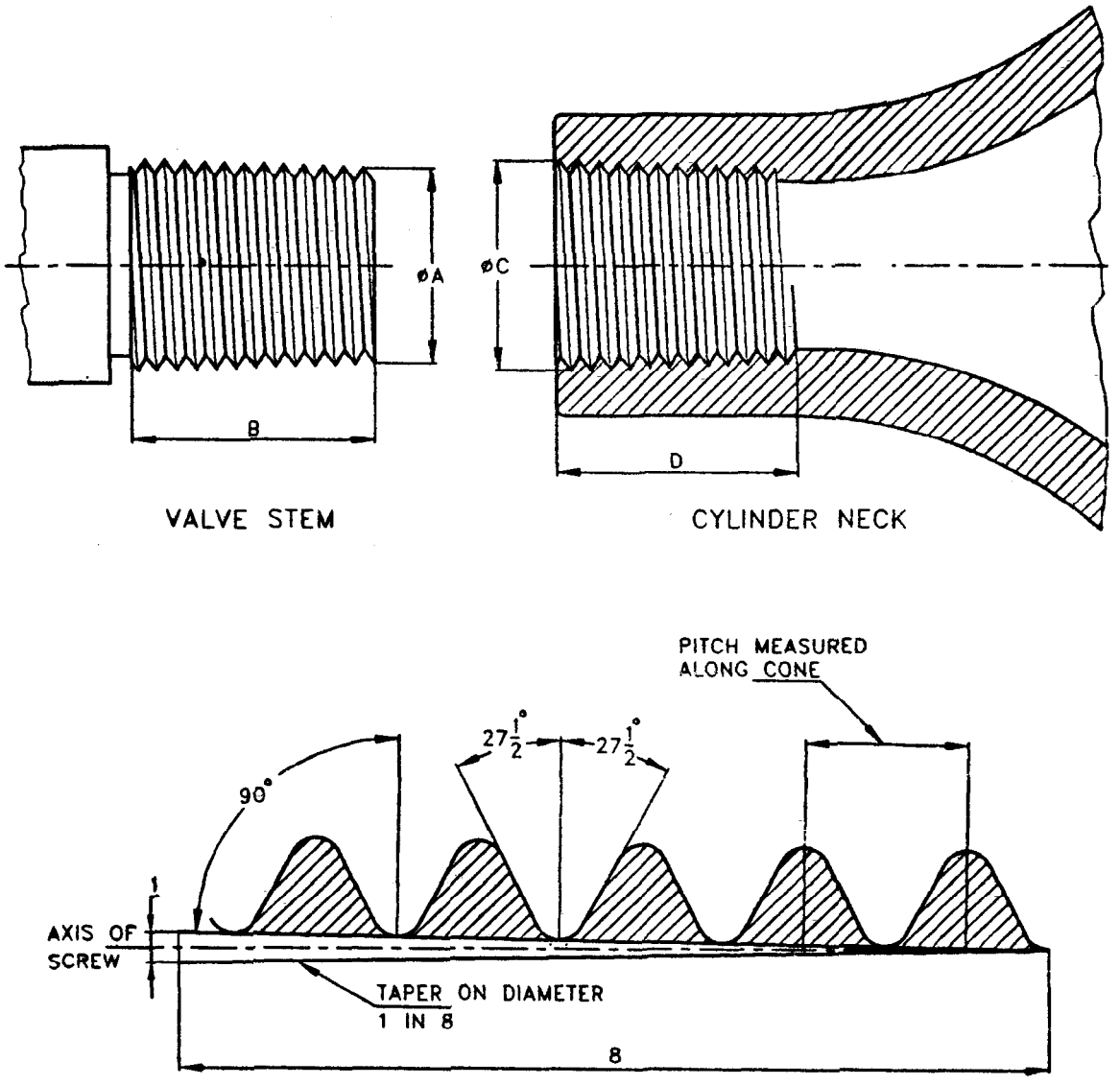
A tool shall be used to make a leak-proof joint with the joint packing (*see* **8.2.1**) which also depresses valve spindle to open position. A test pressure not less than the maximum working pressure shall be applied to the inlet of the valve housing (body).

NOTE — The dimensions or particulars of tools mentioned in **8.2.1** and **8.2.3** shall be as agreed to between the purchaser and the manufacturer.

9 TYPE APPROVAL TESTS

9.1 Design and Fabrication

Before the design of the valve is approved it shall be checked for conformity to all requirements of this specification. Whenever there is a change in material or basic design of the valve, it shall be retested and shall conform to all the requirements of this specification. For the purpose of this clause change of material



NOTE — The thread is same as 0·715" nominal of BS 341 : Part 1 : 1991.

All dimensions in millimetres.

FIG. 4 FORM OF THREAD AND DIMENSIONS OF TYPE 4 TAPER SCREW THREADS OF NOMINAL SIZE 18·16 mm ON VALVE STEMS AND IN CYLINDER NECKS

implies a basic change from one type of material to another, such as steel to copper, etc.

9.2 Cycle Test

The valve shall perform satisfactorily at not less than 5 000 cycles of opening and closing operations with valve inlet connected to an air supply of not less than 686 kPa (7 kg/cm^2) and the opening travel of the spindle shall not be less than minimum of designed travel during the test. After the cycle test, the valve shall be subjected to the pneumatic test given in **8.2** and shall perform satisfactorily.

10 MARKING

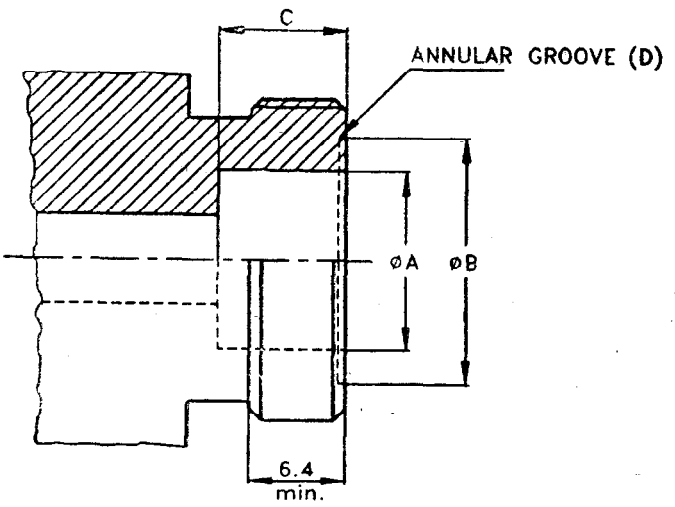
10.1 Each valve shall be permanently marked with the following information:

a) Quarter and year of manufacture,

b) Manufacturer's identification mark,

c) Number of this specification, and

d) Maximum working pressure in kPa.



Threads: EXT, Parallel – SI 21·8 × 1·814 LH

Thread angle = 60°

Pitch = 1·814

Depth of thread (basic) = 1·178

Major diameter = $\frac{21{\cdot}80}{21{\cdot}54}$

Pitch diameter = $\frac{20{\cdot}60}{20{\cdot}45}$

Minor diameter = 19·73 *Max*

Dimensions *A*, *B*, *C* and *D* to be as agreed upon between the manufacturer and the purchaser.

NOTE – General machining tolerances unless otherwise stated shall be ±0·13 mm.

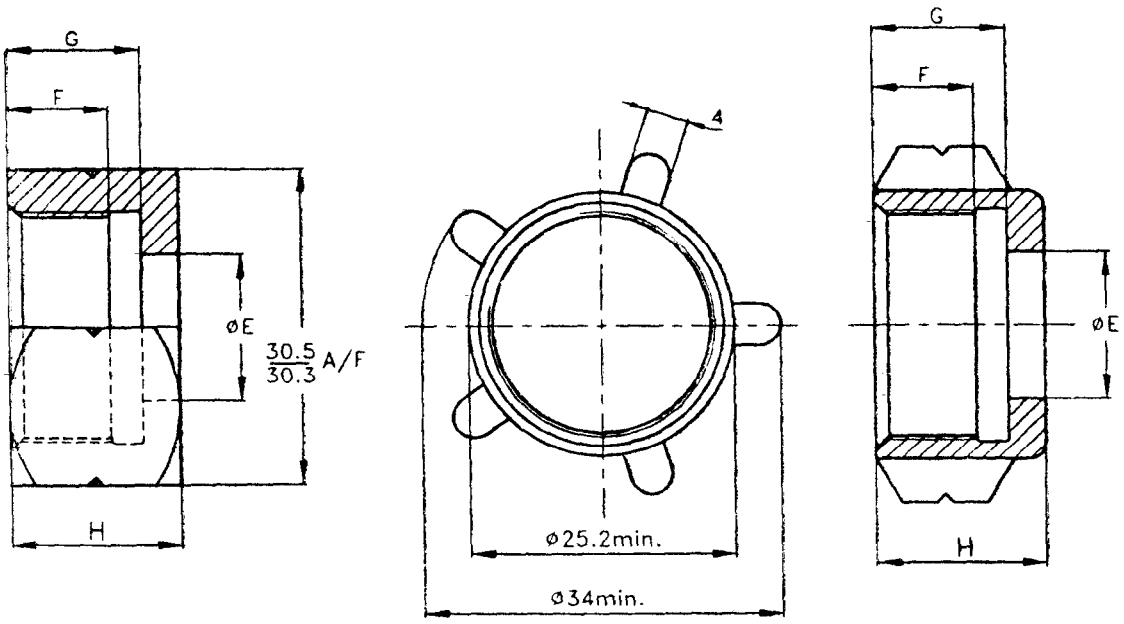
All dimensions in millimetres.

FIG. 5 VALVE OUTLET CONNECTION FOR LIQUEFIED PETROLEUM GAS (LPG)

10.2 BIS Certification Marking

The valves may also be marked with the Standard Mark.

10.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.



HEXAGON NUT

FORGED NUT WITH RIBS
(ALTERNATE SHAPE)

Threads : 1NT — SI 21·8 × 1·814 — LH
Pitch = 1·814
Minor diameter = 19·73 *Min*
Pitch diameter = $\frac{20{\cdot}75}{20{\cdot}60}$
Major diameter = $\frac{22{\cdot}20}{21{\cdot}80}$

NOTES

1 A groove with 90° included angle to be machined on the periphery of the connecting nut at approximately half the total length to denote Left-Hand Thread connection.

2 Dimensions *E*, *F*, *G* and *H* shall be as agreed upon between the manufacturer and the purchaser.

3 General machining tolerances unless otherwise stated shall be ±0·13 mm.

All dimensions in millimetres.

FIG. 6 CONNECTING NUT FOR OUTLET CONNECTION FOR LIQUEFIED PETROLEUM GAS (LPG)

ANNEX A

(*Clause* 3.5)

SAMPLING PLAN FOR EVALUATION OF MECHANICAL PROPERTIES OF THE VALVE MATERIAL

A-1 SCALE OF SAMPLING

A-1.1 Lot

All the valve blanks of the same material, size and produced under similar conditions of manufacture shall grouped together to constitute a lot.

A-1.1.1 Valve blanks shall be selected from each lot separately and then tested, for ascertaining their conformity to the requirements of mechanical properties.

A-1.1.2 The number of valve blanks to be selected from a lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 2. All the samples shall be taken randomly from the lot and for this purpose reference may be made to IS 4905 : 1968.

A-2 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 All the valve blanks selected according to col 2 of Table 2 shall be divided into two equal halves. Each of the samples in the first half shall be tested for tensile and elongation and the second half for Izod impact strength.

A-2.2 The lot shall be declared as conforming to the requirements of mechanical properties if all the samples tested according to **3.3** and **3.4** are found meeting the corresponding requirements. However, if any of the test samples fail to meet the requirements of **3.3** and **3.4**, twice the number of samples shall be taken from the same lot as additional samples and tested. If any of these samples fails to meet the corresponding requirements, the entire lot shall be rejected.

Table 2 Scale of Sampling

(*Clauses* A-1.1.2 *and* A-2.1)

Number of Valve Blanks in the Lot	Sample Size
	For Izod Impact Strength and Tensile Strength and Elongation
(1)	(2)
Up to 500	10
501 to 3 200	14
3 201 to 10 000	20
10 001 to 35 000	32
35 001 and above	50

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act,* 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards : Monthly Additions'.

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IS 8737 : 1995 VALVE FITTINGS FOR USE WITH LIQUEFIED PETROLEUM GAS (LPG) CYLINDERS OF MORE THAN 5-LITRE WATER CAPACITY — SPECIFICATION

(First Revision)

(*Page* 1, *clause* **1.1**) — Substitute the following for the existing clause:

1.1 This standard covers the basic requirements of material, dimensions and testing of valve fittings for gas cylinders of more than 5-litre water capacity for liquefied petroleum gas (LPG). It covers valves with taper stems only.

(*Page* 1, *clause* **2**) — Substitute the following for the existing clause:

2 REFERENCES

The standards listed below are necessary adjuncts to this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IS No.	*Title*
1598 : 1977	Methods for Izod impact test for metals (*first revision*)
1608 : 1995	Methods of tensile testing of steel products (*first revision*)
2102(Part 1) : 1993	General tolerances for dimensions and form and position : Part 1 General tolerances for linear and angular dimensions (*second revision)*
2305 : 1988	Method for mercurous nitrate test for copper and copper alloys (*first revision*)
4905 : 1968	Methods of random sampling
7202 : 1974	Inspection gauges for checking threads of gas cylinder valves for use with breathing apparatus
9121 : 1979	Inspection gauges for checking type 1 (size 2) taper threads of gas cylinders valves, taper 1 in 16

9798 : 1995 Low pressure regulators for use with liquefied petroleum gas (LPG) mixtures – Specification (*first revision*)

NOTE — Delete year specified against Indian Standards in the text.

(*Page* 1, *clause* **3.1**) – Insert the following new clause after **3.1**:

3.1.1 Brass components of the valve shall be subjected to mercurous nitrate test in accordance with IS 2305. The sample shall show no sign of cracking after the test.

(*Page* 1, *clause* **3.2**) – Insert the following new clause after **3.2:**

3.2.1 *Chemical Composition*

The chemical composition of brass alloy shall have the following elements and composition:

Element	*Composition %*
Copper (Cu)	56.5 to 60
Lead (Pb)	1 to 1.5
Iron (Fe)	0.3 *Max*
Manganese (Mn)	0.5 *Min*
Others	0.75 *Max* (inclusive of Iron)
Zinc	Remainder

(*Page* 1, *clause* **3.3.1**) — Substitute the following for the existing clause:

3.3.1 The tensile strength and elongation of the material of valve body determined according to IS 1608 shall be at least 392 MPa (40 kgf/mm^2) and 18 percent measured on a gauge length $5.65\sqrt{S_0}$, S_0 being the original area of cross section.

(*Page* 1, *clause* **4.1.1.2**) — Substitute the following for the existing:

4.1.1.2 *Limits on taper* — If there is any unintentional difference in taper at the pitch elements of the valve and of the cylinder threads, it is preferred to have greater tightness at the bottom of the valve. The limits of gauging shall be as under:

a) The taper on the pitch elements of external threads shall be 1 in 16 on diameter, with a minus tolerance of one turn, but no plus tolerance in gauging.

b) The taper on the pitch elements of internal threads shall be 1 in 16 on diameter, with a plus tolerance of one turn, but no minus tolerance in gauging.

(*Page* 6, *clause* **7.1**) — Substitute '1.67 MPa' *for* '1 666 kPa'.

(*Page* 6, *clause* **7.2**) — Substitute the following for the existing:.

7.2 All valves for commercial propane shall be designated for working pressure of 2.6 MPa. The valves shall not be provided with safety relief.

[*Page* 7, *clause* **10.1**(d)] — Substitute 'MPa' *for* 'kPa'.

(*Page* 10, *clause* **A-2.2**) — Substitute the following for the existing clause:

A-2.2 The lot shall be declared as conforming to the requirements of mechanical properties if it has been found satisfactory when tested according to **A-2.1** and found to be meeting the requirements of mechanical properties as per **3.3** and **3.4**. If any test sample fails to meet the requirements of **3.3** or **3.4**, additional specimens equaling twice the number of sample size for the failed test in the same lot shall be taken and tested for the failed test only. If any of these specimens fails to meet the requirements, the entire lot represented shall be rejected.

(ME 16)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 MARCH 2007
TO
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[*Page* 1, *clause* **3.2.1**(*see also Amendment No.* 1)] — Substitute '1 to 2' *for* '1 to 1.5' under Composition % of Lead (P_b).

(ME 16)

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