SLOVENSKI STANDARD
SIST EN 15202:2007

01-april-2007

Oprema in pribor za utekočinjeni naftni plin (UNP) - Glavne mere izhodnega priključka ventila jeklenke za UNP ter pripadajoči pomožni priključki

LPG equipment and accessories - Essential operational dimensions for LPG cylinder valve outlet and associated equipment connections

Flüssiggas-Geräte und Ausrüstungsteile - Grundmaße für Ventilauslässe an Flüssiggas-(LPG-)Flaschen und zugehörige Verbindungen für Geräte

Equipements pour GPL et leurs accessoires - Dimensions opérationnelles essentielles des connexions des robinets et valves de bouteilles de GPL et des équipements associés

Ta slovenski standard je istoveten z: **EN 15202:2006**

ICS:

23.020.30	Tlačne posode, plinske jeklenke	Pressure vessels, gas cylinders
23.060.40	Tlačni regulatorji	Pressure regulators

SIST EN 15202:2007 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15202

December 2006

ICS 23.060.40

English Version

LPG equipment and accessories - Essential operational dimensions for LPG cylinder valve outlet and associated equipment connections

Equipements pour GPL et leurs accessoires - Dimensions opérationnelles essentielles des connexions des robinets et valves de bouteilles de GPL et des équipements associés

Flüssiggas-Geräte und Ausrüstungsteile - Grundmaße für Ventilauslässe an Flüssiggas-(LPG-)Flaschen und zugehörige Verbindungen für Geräte

This European Standard was approved by CEN on 21 October 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 15202:2006) has been prepared by Technical Committee CEN/TC 286 “Liquefied petroleum gas equipment and accessories”, the secretariat of which is held by NSAI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies basic dimensions of cylinder valves (manufactured in accordance with EN 13152 and EN 13153) and connectors (including regulators) to enable them to be connected together.

This European Standard lists connections where it may be possible to connect together, but which when connected may not be sound or secure in some operating conditions or orientations.

This European Standard also recommends tightening torques for the attachment of screwed metal-to-metal connections.

This European Standard contains the drawings, which describe direct cylinder valve connections in the following standards:

— EN 12864,

— EN 13785, and

— EN 13786.

Quality assurance systems, production testing and particularly certificates of conformity are not covered in this standard.

This European Standard excludes connections for automotive vehicles covered by UN/ECE Regulation 67 and EN 13760 and excludes connections for cartridges.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 549, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 560, *Gas welding equipment – Hose connections for equipment for welding, cutting and allied processes*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

ISO 68-1, *ISO general purpose screw threads — Basic profile — Part 1: Metric screw threads*

ISO 3601-1, *Fluid power systems - O-rings - Part 1: Inside diameters, cross-sections, tolerances and size identification code*

DIN 477-1, *Gas cylinder valves rated for test pressures up to 300 bar; types, sizes, and outlets*

ANSI/CGA V-1 *American National, Compressed Gas Association Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections*

ANSI/ASME/B1.5, *ACME Screw Threads issued by American Society of Mechanical Engineers 1990*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
LPG (liquefied petroleum gas)
mixture of predominantly butane or propane with traces of other hydrocarbon gases classified in accordance with UN number 1965, hydrocarbon gases mixture, liquefied, NOS or UN number 1075, petroleum gases, liquefied

NOTE In some countries, UN numbers 1011 and 1978 may also be designated LPG.

3.2
connector
device that attaches to a cylinder valve to allow the passage of LPG to or from the cylinder

3.3
valve operating mechanism
mechanism that opens the valve when, or after, a regulator or connector is fitted and closes the valve automatically when, or before, a regulator or connector is disconnected

4 Symbols and abbreviations

NBR Acrylonitrile-butadiene rubber (see ISO 4658).

STP Standard Temperature and Pressure [15,6 °C (288,7 K), 1,013 bar absolute (0,1013 MPa absolute)]

IRHD, International Rubber Hardness Degrees.

5 Design

The dimensions shall be in accordance with those given in the following figures.

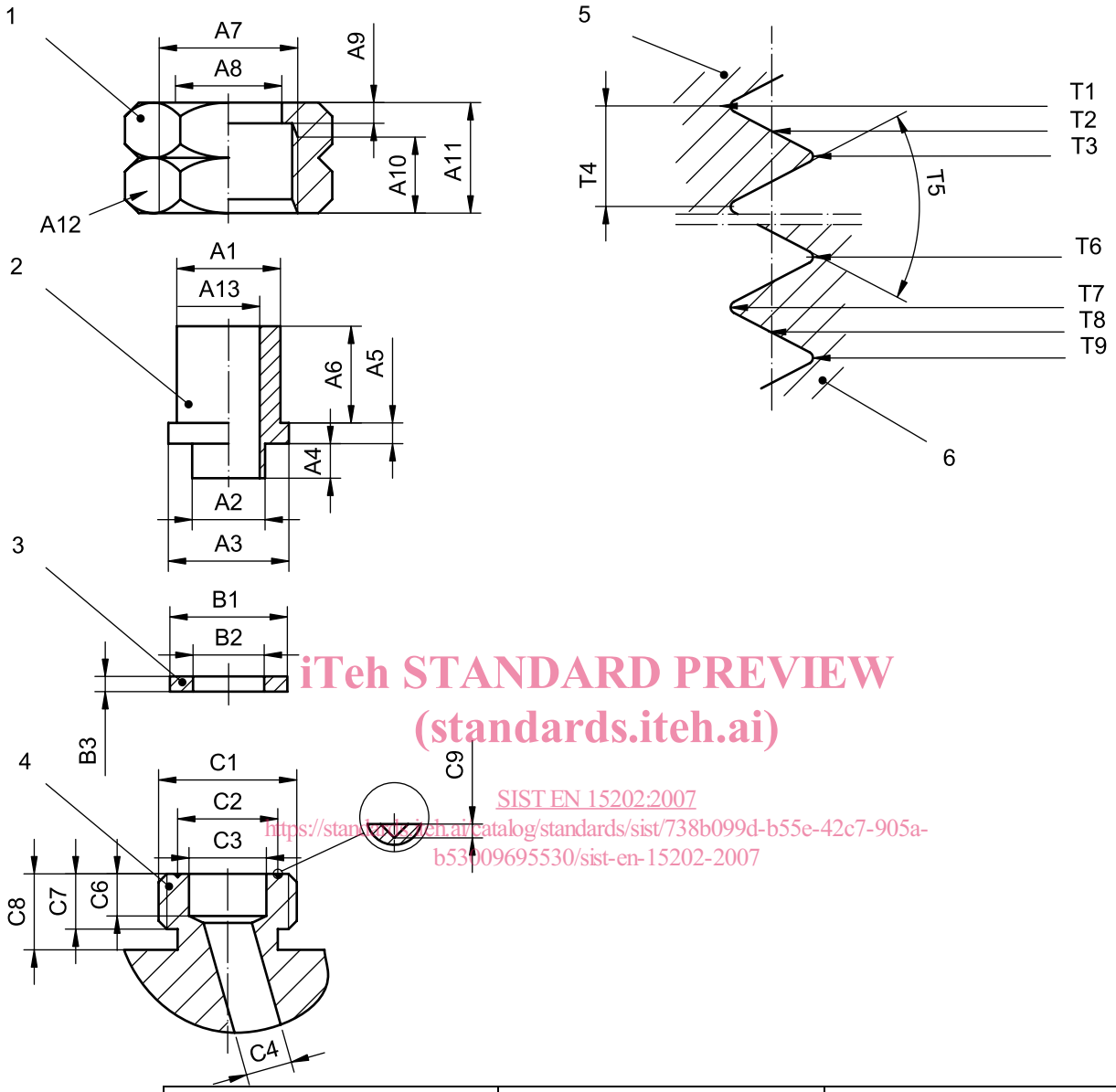
The travel distance of the valve operating mechanisms is identified where required.

The drawings show the location of sealing elements where required.

Any hexagon nut with a left hand thread shall, for easy identification, have notches (for example a 60° V groove) at the corners.

Where concentricity and surface finish are not specified, the requirements shall be as specified by the manufacturer.

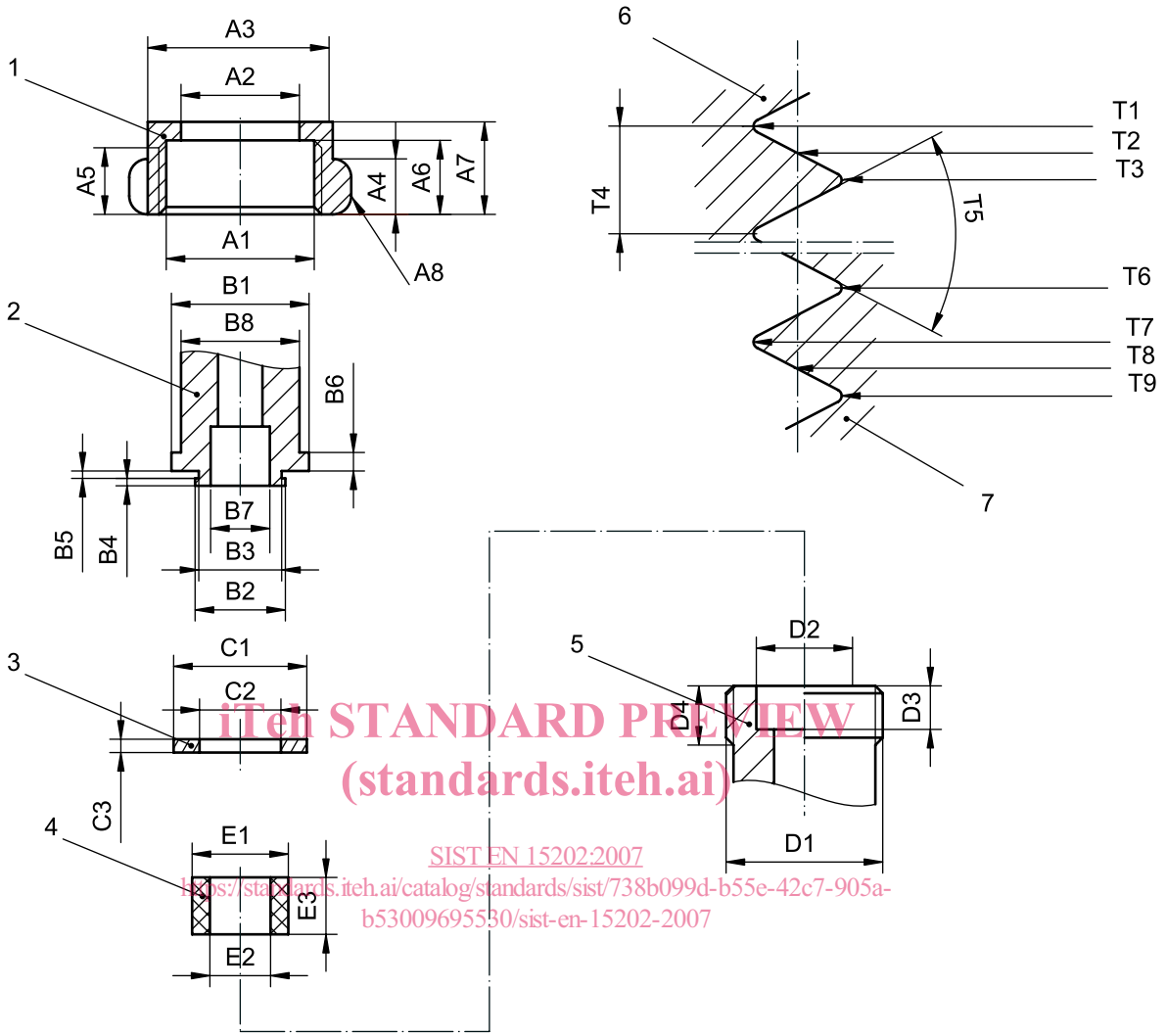
Dimensions in millimetres



Key		Connector/Nut		Seal		Thread	
1	nut	A1	∅ 14,80 - ∅ 15	B1	∅ 16,8 - ∅ 17	T1	∅ 20 min.
2	connector	A2	∅ 10,5 - ∅ 10,6	B2	∅ 10,2 - ∅ 10,4	T2	∅ 18,838 – ∅ 19,973
3	seal	A3	∅ 17,4 - ∅17,5	B3	2,0 – 2,2	T3	∅ 17,696 – ∅ 18,266
4	valve	A4	4,8 – 5,2	NBR or equivalent		T4	1,814
5	nut thread	A5	2,9 – 3,1	EN 549 A2/H3		T5	55°
6	valve thread	A6	14 min.	**Valve**		T6	R 0,249
		A7	20 x 1,814 L.H.	C1	20 x 1,814 L.H.	T7	∅ 19,589 – ∅ 19,98
		A8	∅ 15,15 - ∅15,26	C2	∅ 14,3 – 14,7	T8	∅ 18,703 – ∅ 18,838
		A9	2,9 – 3,1	C3	∅ 11,1 – 11,3	T9	∅ 17,317 – ∅ 17,676
		A10	11 min.	C4	∅ 6,8 - ∅ 7,2		
		A11	15,8 – 16,2	C5	R0,3 – R0,7		
		A12	25 A/F	C6	6,0 – 6,3		
		A13	∅ 8,4 max.	C7	7,0 – 10,0		
				C8	11 min.		
				C9	0,5 x 90°		

Figure 1 — Type G.1 - Threaded connection 20 x 1,814 LH - Spanner tightened

Dimensions in millimetres



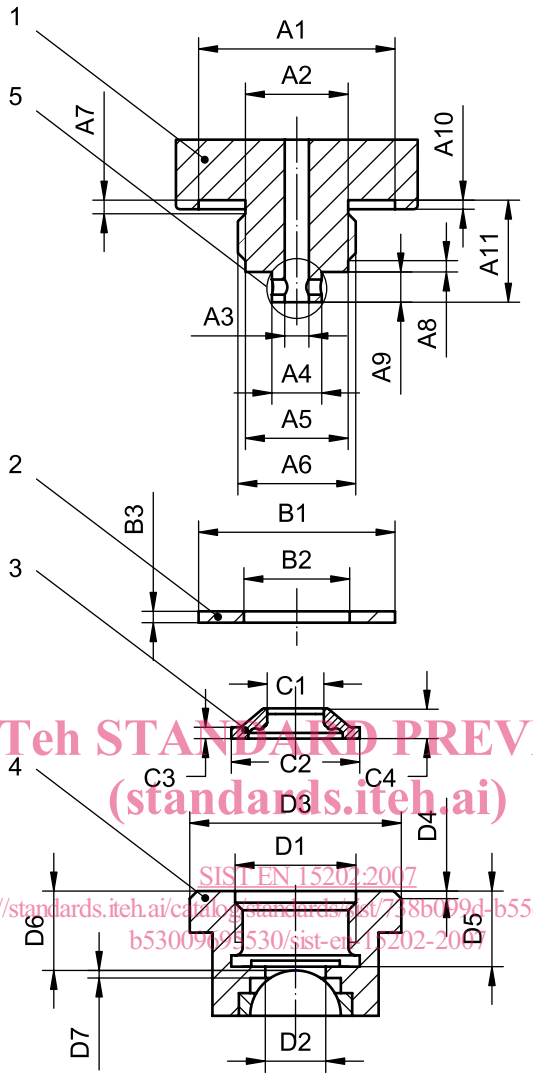
Key

1 nut
2 connector
3 seal
4 seal
5 valve
6 nut thread
7 valve thread

Nut		Connector		Seal	
A1	21,8 x 1,814 LH	B1	∅ 18,5 – ∅ 18,7	C1	∅ 17,7 - ∅ 18,0
A2	∅ 16 max.	B2	∅ 12,2 – ∅ 12,3	C2	∅ 10,7 - ∅ 11,0
A3	∅ 24,6 min.	B3	∅ 11,1 – ∅ 11,3	C3	1,7 – 2,0
A4	7,5 min.	B4	0,9 – 1,0	NBR or equivalent	
A5	7,5 – 8,1	B5	2,0 – 2,2	EN 549 A2/H3	
A6	9,9 – 10,5	B6	2,4 – 2,6	**Thread**	
A7	12,5 min.	B7	∅ 9,0 max.	T1	∅ 21,8 min.
A8	5 wings equally spaced	B8	∅ $A2^{-0,1}_{-0,3}$	T2	∅ 20,622 – ∅ 20,722
Valve		**Seal**		T3	∅ 19,444 – ∅ 19,544
D1	21,7 x 1,814 LH	E1	∅ 13,35 - ∅ 13,65	T4	1,814
D2	∅ 13 – 13,1	E2	∅ 8,0 - ∅ 8,4	T5	60°
D3	7,8 – 8,0	E3	7,5 – 7,8	T6	R 0,249
D4	8,6 – 8,7	NBR or equivalent		T7	∅ 21,6 – ∅ 21,7
		EN 549 A2/H3		T8	∅ 20,422 – ∅ 20,522
				T9	∅ 18,7 – ∅ 18,8

Figure 2 — Type G.2 - Threaded connection 21,7 x 1,814 LH - 60°– Hand tightened

Dimensions in millimetres



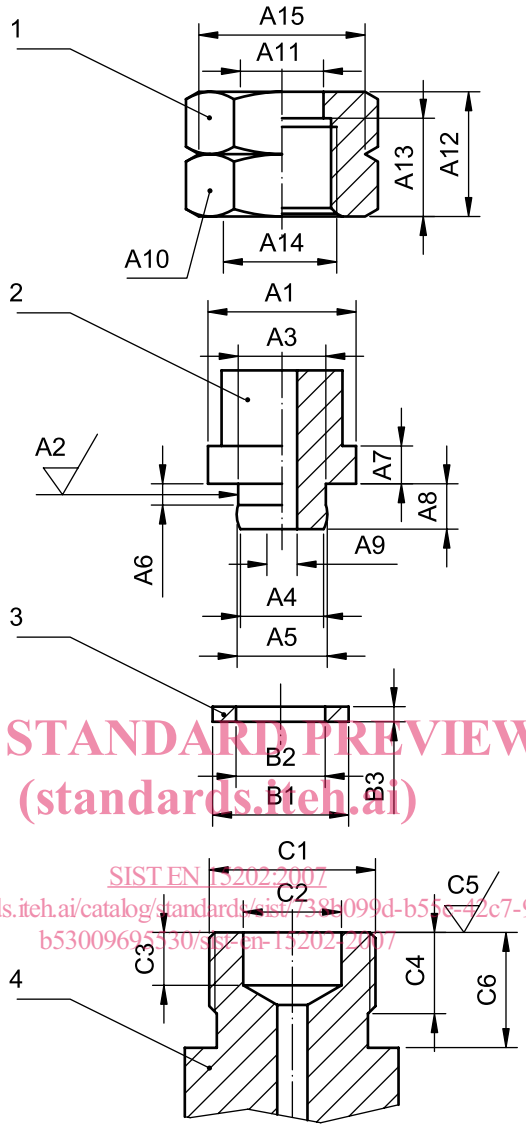
Key

1 connector
2 seal
3 gasket
4 valve
5 example of one configuration of the inlet/gas passage to the connector

Connector		Seal	
A1	∅ 27 - ∅ 27,21	B1	∅ 25,7 - ∅ 26,3
A2	∅ 13,9 - ∅ 14,1	B2	∅ 14,0 - ∅ 14,6
A3	∅ 3,0 - ∅ 3,2	B3	1,35 – 1,65
A4	∅ 6,4 - ∅ 6,6	NBR or equivalent	
A5	∅ 13,7 - ∅ 13,9	EN 549 A2/H3	
A6	M16 x 1,5-6g	**Valve**	
A7	1,6 – 1,8	D1	M16 x 1,5 – 6H
A8	1,4 – 1,6	D2	∅ 8,4 – ∅ 8,6
A9	3,9 – 4,1	D3	∅ 26,5 – ∅ 27,3
A10	1,2 – 1,4	D4	1 x 45°
A11	13,4 – 13,6	D5	10,3 – 10,5
Gasket		D6	10,2 – 10,6
C1	∅ 7,5 ± 0,15	D7	1,0 min.
C2	∅ 17,0 ± 0,1		
C3	1,5 ± 0,15		
C4	4,0 ± 0,15		

Figure 3 — Type G.3 - Threaded connection M16 x 1,5 R - Hand tightened

Dimensions in millimetres



Key

1 nut
2 connector
3 seal
4 valve

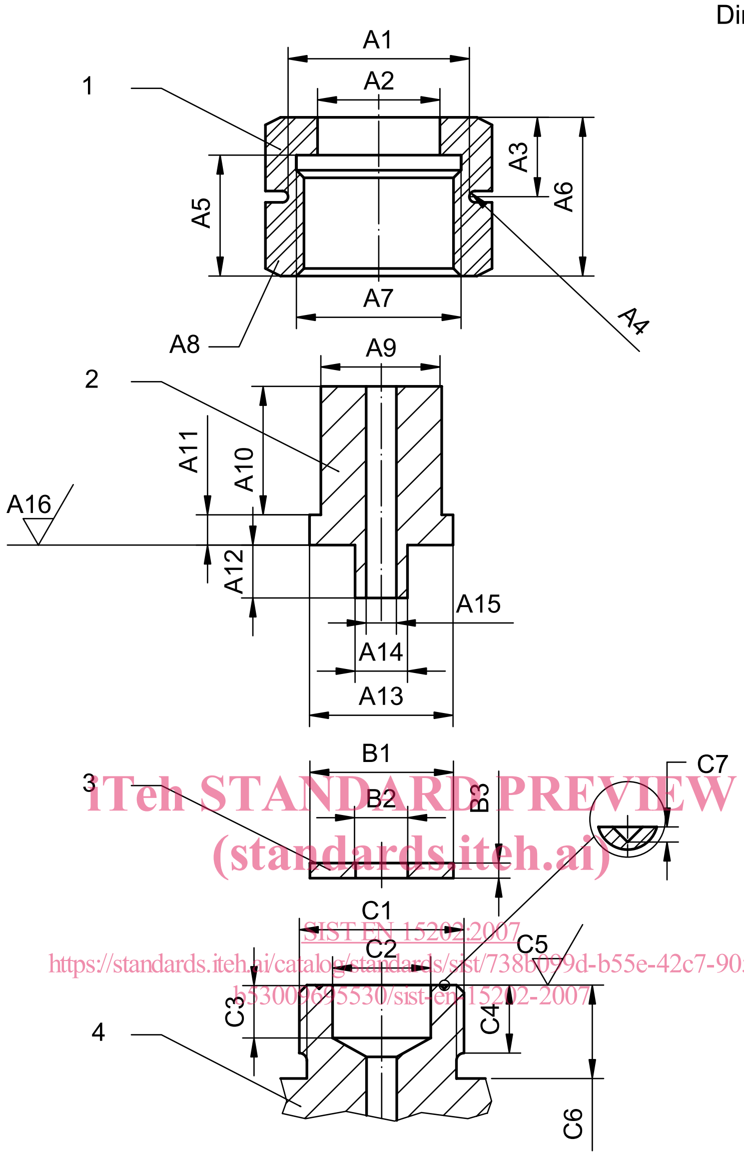
* For guidance on the selection of aluminium, see EN ISO 11114-1

** For guidance on the selection of polyamide, see EN ISO 11114-2

Connector/Nut		Seal	
A1	∅ 18,8 - ∅ 19,2	B1	∅ 19,8 - ∅ 19,2
A2	√Ra 3,2	B2	∅ 11,6 - ∅ 12
A3	∅ 11,3 - ∅ 11,7	B3	1,9 – 2,1
A4	∅ 10,8 - ∅ 11,2	NBR or equivalent - EN 549 A2/H3 or aluminium* or polyamide**	
A5	∅ 11,89 - ∅ 12,0		
A6	1,7 – 1,9	**Valve**	
A7	4,9 – 5,1	C1	W 21,8 x 1,814 LH DIN 477-1
A8	5,9 – 6,1	C2	∅ 12,7 – ∅ 13,3
A9	∅ 8 max.	C3	6,8 – 7,2
A10	30 A/F	C4	9,0 min.
A11	∅ 16,15 - ∅ 16,26	C5	√Ra 3,2
A12	21,0 – 21,3	C6	11,5 min.
A13	16,0 – 16,3		
A14	W 21,8 x 1/1,814 LH DIN 477-1		
A15	∅ 30,0 – ∅ 30,1		

Figure 4 — Type G.4 - Threaded connection W 21,8 x 1,814 LH - 55°– Spanner tightened

Dimensions in millimetres



Key

1 nut

2 connector

3 seal

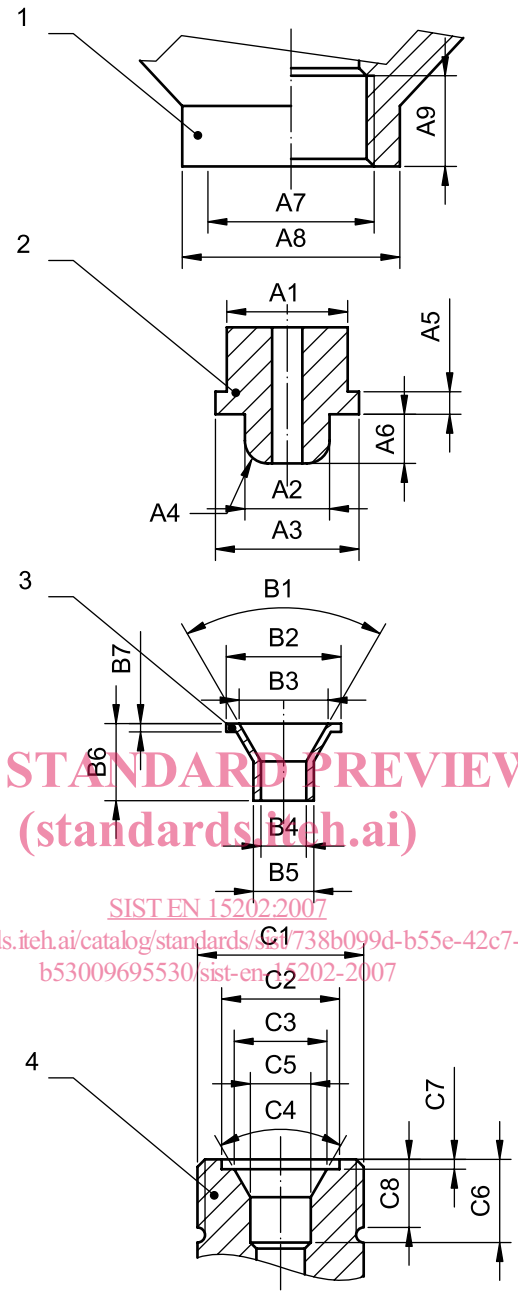
4 valve

* For guidance on the selection of polyamide, see EN ISO 11114-2

Connector/Nut		Seal	
A1	∅ 29,8 - ∅ 30	B1	∅ 18,8 - ∅ 19,2
A2	∅ 16,15 - ∅ 16,26	B2	∅ 6,9 - ∅ 6,95
A3	10,3 – 10,7	B3	1,9 – 2,1
A4	R 0,75	The seal material is polyamide*.	
A5	16,0 - 16,3	The Connector/Nut and seal also fits G12 valve	
A6	21,0 – 21,3	**Valve**	
A7	W 21,8 x 1,814 LH DIN 477-1	C1	W 21,8 x 1,814 LH DIN 477-1
A8	30 A/F	C2	∅ 12,7 – ∅ 13,3
A9	∅ 15,84 - ∅ 15,96	C3	6,8 – 7,2
A10	17 min.	C4	9,0 min.
A11	3,9 – 4,1	C5	√Ra 3,2
A12	6,8 – 7,2	C6	11,5 min.
A13	∅ 18,8 – ∅ 19,2	C7	0,5 x 90°
A14	∅ 6,92 - ∅ 6,96		
A15	∅ 3,9 - ∅ 4,1		
A16	√Ra 3,2		

Figure 5 — Type G.5 - Threaded connection W 21,8 x 1,814 LH – 55°– Spanner tightened

Dimensions in millimetres



Key

1 nut
2 connector
3 seal
4 valve

* For guidance on the selection of polyamide, see EN ISO 11114-2

Connector		Seal		Valve	
A1	∅ 15,8 - ∅ 16	B1	59° - 61°	C1	W 22 x 1,155 LH
A2	∅ 11 - ∅ 11,2	B2	∅ 15 – ∅ 15,3	C2	∅ 15,5 - ∅ 15,7
A3	∅ 18,8 - ∅ 19	B3	∅ 10,8 – ∅ 11,2	C3	∅ 11,9 - ∅ 12,1
A4	2,9 – 3,1	B4	∅ 5,8 – ∅ 6,0	C4	59° - 61°
A5	2,8 – 3,2	B5	∅ 8 + 3 deformation ribs	C5	∅ 8,0 - ∅ 8,05
A6	6,3 – 6,7	B6	10,0 – 10,5	C6	11 min.
A7	W 22 x 1,155 LH	B7	1,0 – 1,2	C7	1,2 – 1,4
A8	∅ 28,3 – ∅ 28,7	The seal material is polyamide*.		C8	9 min.
A9	11,8 – 12,2				

Figure 6 — Type G.6 - Threaded connection W 22 x 1,155 LH – Hand tightened