NATO STANDARD

AMedP-1.19

CROSS-SERVICING OF MEDICAL GAS CYLINDERS

Edition A Version 1

FEBRUARY 2017

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED MEDICAL PUBLICATION

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NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

1 February 2017

1. The enclosed Allied medical publication AMedP-1.19, Edition A, Version 1, CROSS-SERVICING OF MEDICAL GAS CYLINDERS, which has been approved by the nations in the Military Committee Medical Standardization Board, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2121.

2. AMedP-1.19, Edition A, Version 1, is effective upon receipt and supersedes AMedP-53, Edition A, Version 1, which shall be destroyed in accordance with the local procedure for the destruction of documents.

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4. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAZEIKIS
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]
BGR	Bulgarian Armed Forces (BAF) do not use Pin-Index-System. BAF will not implement Chapter 4 of AMedP-1.19 because BGR military service does not have the required special adapters for gas cylinders of more than 5.5 litres.
DEU	Germany reserves the right: not to apply the STANAG 2121, AMedP-1.19 for reasons of technical aviation safety in aircraft of the German Armed Forces.
NLD	The Netherlands use NEN-3268 RI-2 and not EN 850-index (Annex B National Specification of Cylinder-valves)
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 AIM

The aim of this Allied Medical Publication (AMedP) is to facilitate cross-servicing of medical gas cylinders between NATO Forces.

1.2. AGREEMENT

Participating nations agree:

a. to adopt a standard colour code system for the identification of the content of the medical gas cylinders,

b. to fit the gas cylinders with flush type cylinder outlet valves which correspond either to international or national civil norms of one of the member states,

c. to ensure mutual information about specifications of used outlet valves and about planned changes in used specifications,

d. as far as possible to stock adapters in order to establish compatibility between the standards thereby allowing proper cross-servicing of medical cylinders.

1.3. PARAMETERS

The following paragraphs describe the agreed parameters and characteristics for common use medical gas cylinders, not the composite lightweight variants.

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CHAPTER 2 COLOUR CODE FOR MEDICAL GAS CYLINDERS

Medical gases stocked by NATO Forces will be held in cylinders which will be coloured on the shoulder as shown below. In addition, the formula of the gas or gas mixture is to be indicated plainly visible on the shoulder.

Gas	Colour of Shoulder / Formula of the gas / gas mixture
Oxygen, medical	White / O_2
Dinitrogen oxide, medical	Blue / N_2O
Carbon dioxide, medical	Grey / CO_2
Air / synthetic air	Black stripe on white background / Air
Mixture Helium / Oxygen	Brown stripe on white background / He / O_2
Mixture Oxygen / Dinitrogen oxide	Blue stripe on white background / O_2 / N_2O
Mixture Oxygen / Carbon dioxide	Grey stripe on white background / O_2 / CO_2

The cylinders in which gases for medical and inhalation use are encased should be coloured white.

NOTE: These colours are identical to those recommended by the International Standards Organisation (ISO) R32 and the European Norm EN 1089-3.

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CHAPTER 3 OUTLET VALVE SYSTEM

3.1. CYLINDERS OF UP TO AND INCLUDING 5.5 LITERS

Medical gas cylinders of up to and including 5.5 liters water capacity have to be fitted with a flush type cylinder outlet valve which corresponds either to national or international civil norms. International standardization (e.g. ISO, EN) should be adopted for military use.

3.2. NATIONAL SPECIFICATIONS

Details on national specifications of cylinder-valves used by the member states are given in Annex B.

3.3 PIN INDEX SYSTEM

If possible, the valves should be fitted with a pin index system of the type indicated in Annex A3.1 – A3.3. If no pin index system is available, appropriate adapters which allow taking out from bottles with pin index system will be attached to the gas-consuming medical apparatus.

If a pin index system is used, it should apply to the following specifications:

a. The name or the chemical symbol of the gas will be clearly and indelibly stamped on the valve.

b. The yoke with which the flush valve is to be connected will conform, where appropriate, to the dimensions given in Figure 1 of Annex A3.1. The yoke will be fitted with pins of the dimensions and in the positions indicated in Figures 2 to 6 of Annex A3.1 – A3.3 for the appropriate gas.

c. Valve outlet connections for the gases shown will be numbered as follows:

Figure	Connection Number
2	870
3	880
4	910
5	920
6	940

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CHAPTER 4 SPECIAL ADAPTERS

4.1. GAS CYLINDERS OF MORE THAN 5.5 LITRES WATER CAPACITY

Gas cylinders of more than 5.5 litres water capacity have to be fitted with a flush type cylinder outlet valve which corresponds either to international or national civil norms.

4.2. CROSS-SERVING

To permit cross-serving of the medical gas cylinders of all NATO Forces, each nation will require two adapters between:

a. own bottle and foreign apparatus (“GIVE”, Annex A.1)

b. foreign bottle and own apparatus (“TAKE”, Annex A.2)

4.3. STANDARD CONNECTION

The connection between the adapters is the standard connection US type threads 903-14NGO-RH-EXT and 908-14NGO-RH-INT respectively. The adapters have one end with the national type thread and one end with the US type thread.

4.4. MARKING

The adapters will be marked with official NATO abbreviated designations indicating the country of origin (STANAG 1059).

4.5. NUMBER OF ADAPTERS

The number of adapters sets held shall be at the discretion of the individual nations.

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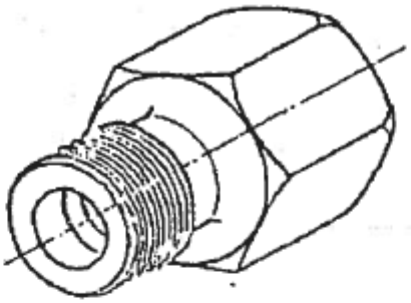
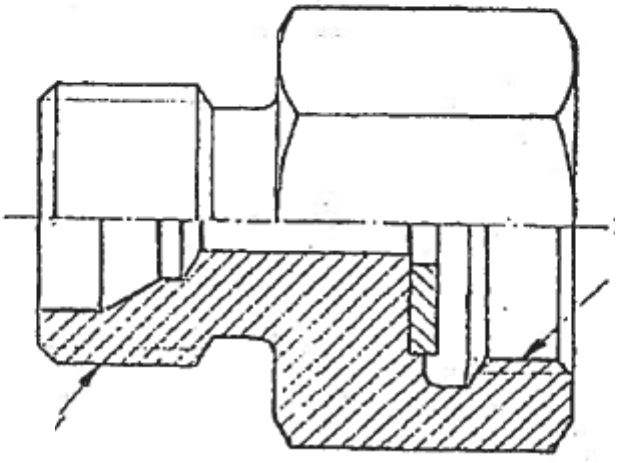
ANNEX A DIMENSIONS OF ADAPTERS

A.1. ADAPTER GIVE FOR MEDICAL GASES

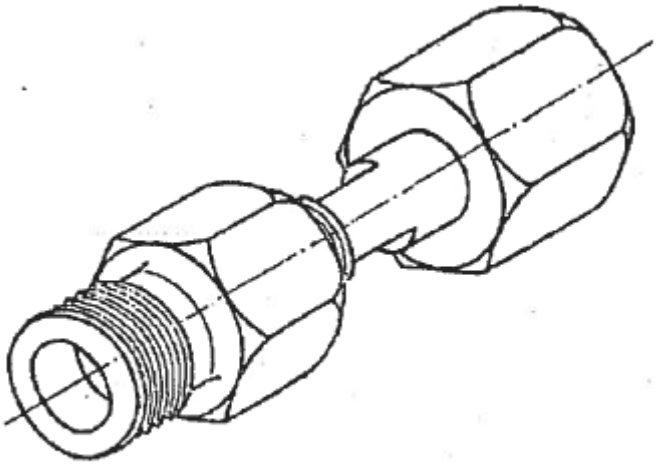


ÉCHELLE/SCALE 1:1



ÉCHELLE/SCALE 2:1

A.2. ADAPTER TAKE FOR MEDICAL GASES



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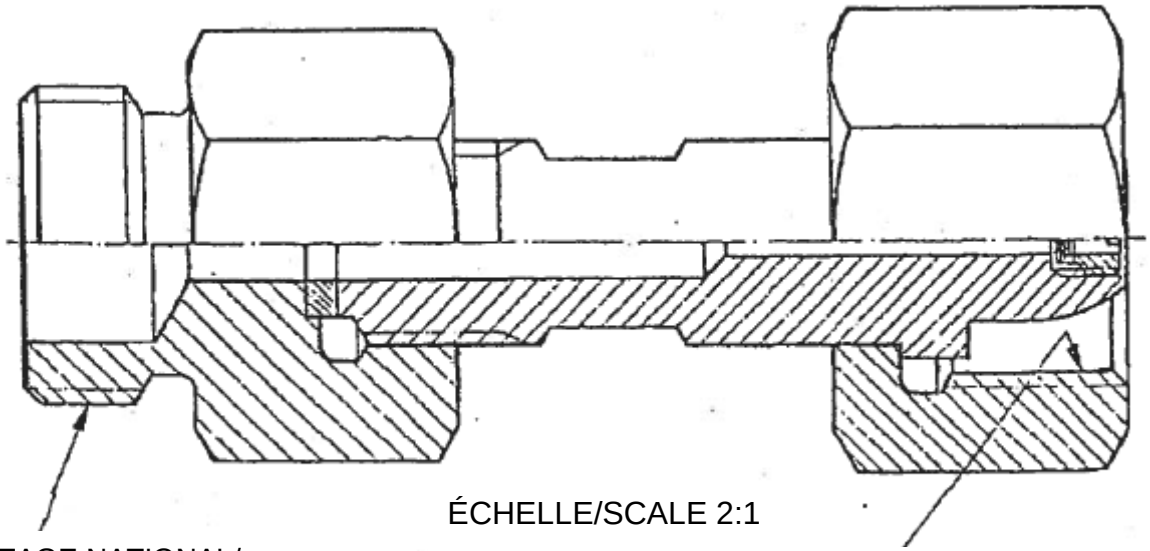

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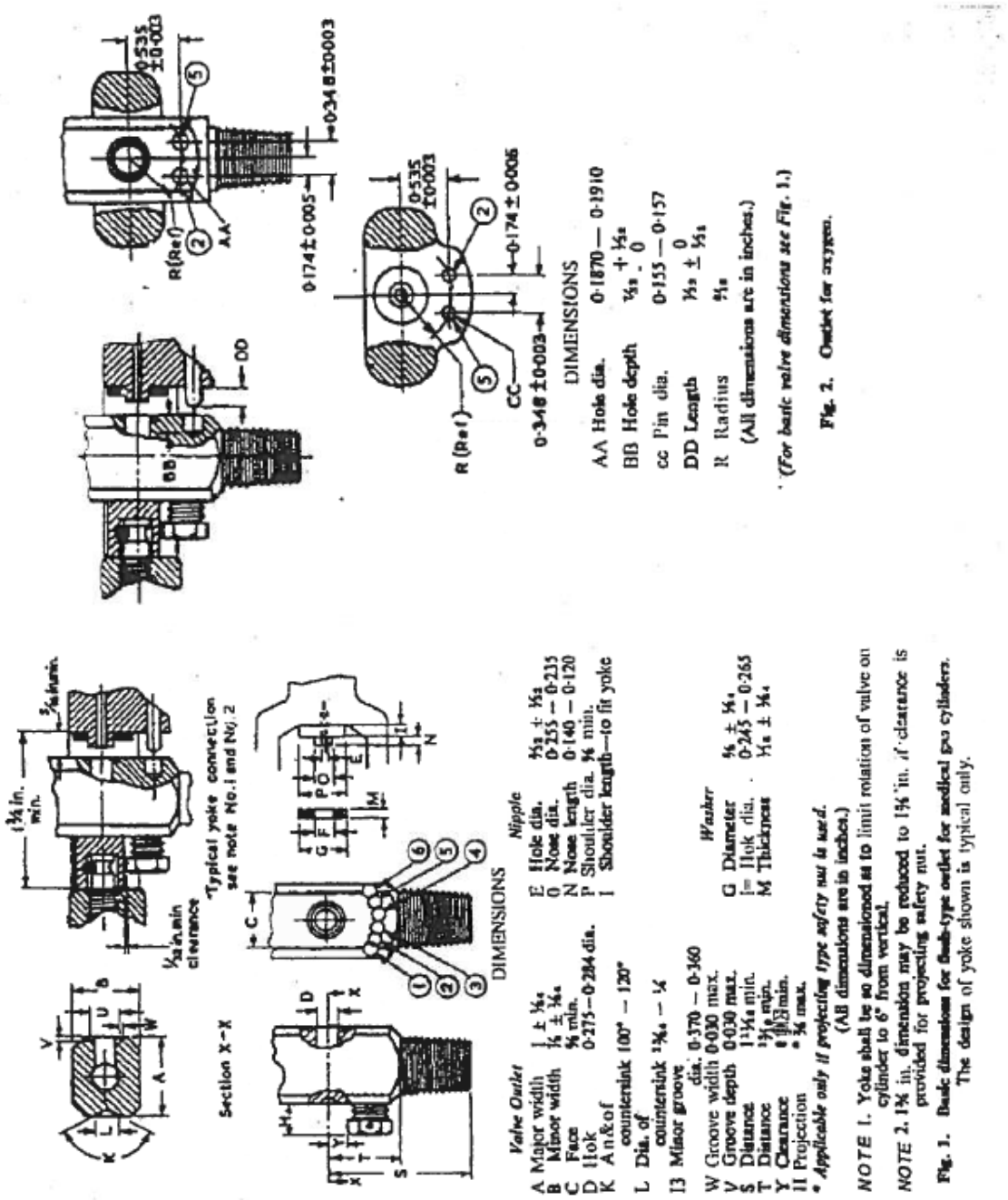
FILETAGE NATIONAL/
NATIONAL-THREAD

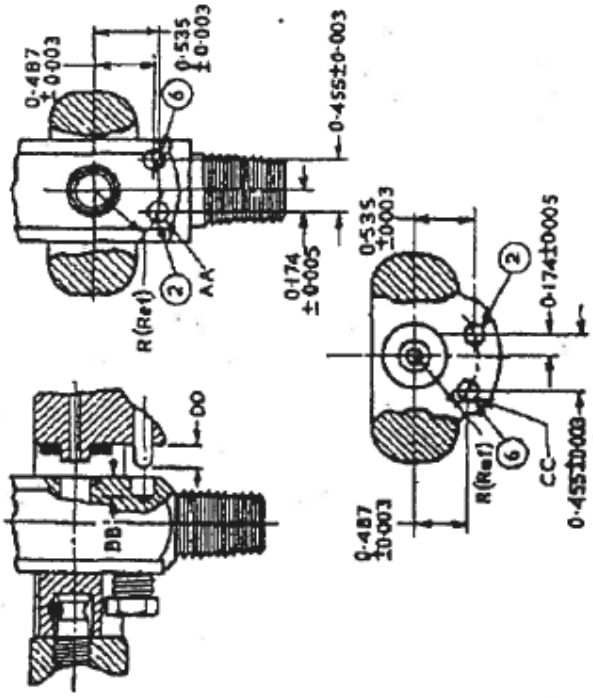
FILETAGE OTAN/NATO-THREAD

A.3. TECHNICAL DATA OF PIN INDICES

A.3.1



A.3.2



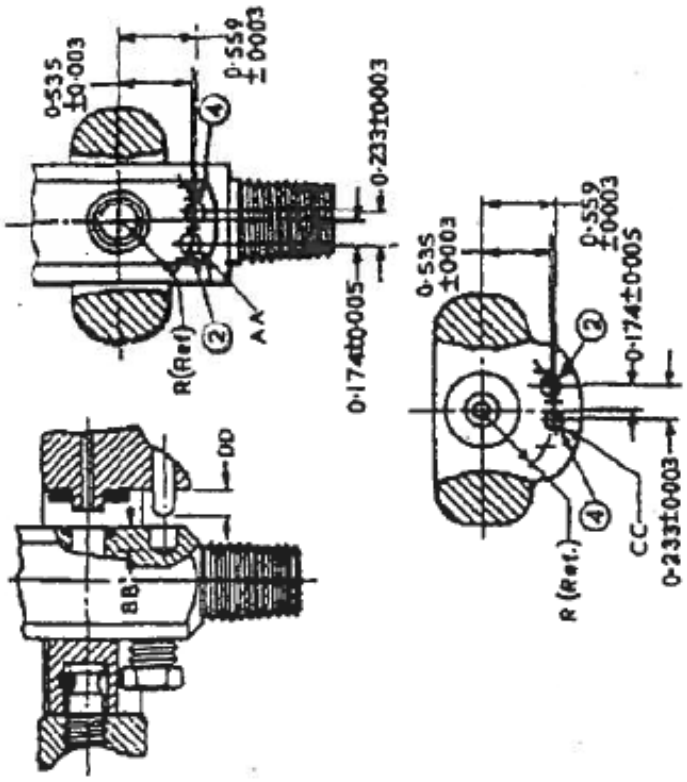
DIMENSIONS

AA Hole dia.	0·1870—0·1910
BB Hole depth	3/32 + 0
CC Pin dia.	0·155—0·157
DD Length	3/32 — 1/32
R Radius	1/16

(All dimensions are in inches.)

(*For basic valve dimensions see Fig.* 1.)

Fig. 3. Outlet for oxygen and carbon dioxide mixtures. (Carbon dioxide not over 7 per cent)



DIMENSIONS

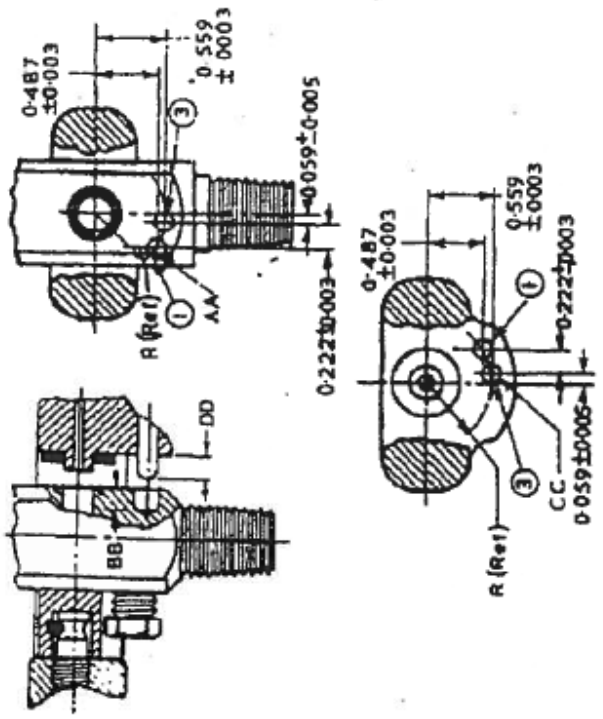
AA Hole dia.	0·1870—0·1910
BB Hole depth	3/32 + 0
CC Pin dia.	0·155—0·157
DD Length	3/32 ± 1/32
R Radius	1/16

(All dimensions are in inches.)

(*For basic valve dimensions see Fig.* 1.)

Fig. 4. Outlet for oxygen and helium mixtures. (Helium not over 80 per cent)

A.3.3



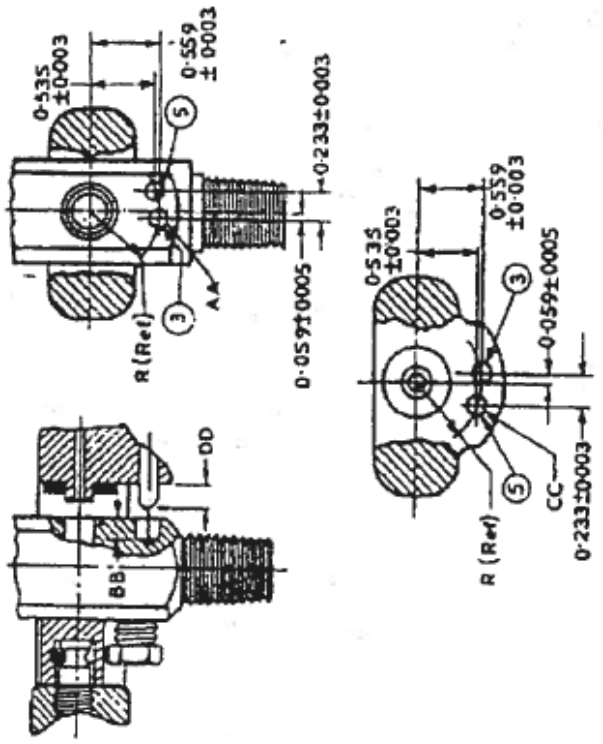
DIMENSIONS

AA Hole dia.	0·1870 — 0·1910
BB Hole depth	3/32 + 1/64 − 0
CC Pin dia.	0·155 — 0·157
DD Length	3/16 + 0 − 1/32
R Radius	5/16

(All dimensions are in inches.)

(For basic valve dimensions see Fig. 1.)

Fig. 5. Outlet for ethylene.



DIMENSIONS

AA Hole dia.	0·1870 — 0·1910
BB Hole depth	3/32 + 1/32 − 0
CC Pin dia.	0·155 — 0·157
DD Length	3/16 + 0 − 1/32
R Radius	5/16

(All dimensions are in inches.)

(For basic valve dimensions see Fig. 1.)

Fig. 6. Outlet for nitrous oxide

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ANNEX B NATIONAL SPECIFICATION OF CYLINDER-VALVES

Gas Cylinders of up to 5.5 litres water capacity

	Oxygen		Dinitrogen oxide	
	Pin-Index-System (Annex C)	**Other specification**	**Pin-Index-System (Annex C)**	**Other specification**
Belgium	No	female thread, 22,91 mm	no	Male thread, 21,7 mm
Bulgaria				
Canada	yes	CGA standards V-5 1980 / CSA standard Z168.13-97	yes	CGA standards V-5 1980 / CSA standard Z168.13-97
Czech. Rep.	No	Czech standard 07 86 01 W21,8 x 1/14 (EXT) EN 1089-3	no	Czech standard 07 86 01 G 3/8 (EXT) EN 1089-3
Denmark	yes	21,8 mm x 1/14 inch, right thread male	no	3/8 inch x 1/19 inch right thread male
Estonia				
France	no	bottle with integrated expansion valve	no	
Germany	No	DIN ISO 228, Part 1 right thread G ¾	no	DIN ISO 228, Part 1 right thread G ¾
Greece	No	female, right thread, diameter 22,91 mm, pitch 1,814 mm	no	female, right thread, diameter 26 mm, pitch 1,50 mm
Hungary	No	Hungarian standard 5992 W 21,8 x 1/14	no	Hungarian standard 5992 W 21,8 x 1/14
Italy	yes (Air Force and Navy)		yes (Air Force and Navy)	

	no (Army)	Male, right thread, diam 21,7 14 ft per inch, UNI 4406	no (Army)	Male, right thread, diam 30 14 ft per inch, UNI 4410
Latvia				
Lithuania	No	DIN ISO 228, Part 1, right thread G 3/4	no	DIN ISO 228, Part 1, right thread G 3/8
Netherlands	yes	NEN-3268 RI-2	yes	NEN-3268 RU-1
Norway	No	DIN 6 ; W 21,8x1 1/14 right extern thread (Witt wort)	no	DIN 11 ; R3/8 right extern thread (Witt wort)
Poland				
Portugal				
Romania				
Slovakia				
Slovenia				
Spain	No	ITC-MIE-AP 7 Type F 22,91 x 1,814 right thread	no	ITC-MIE-AP 7 Type U 16,66 x 1,33 right thread
Sweden	yes (civilian usage only; not used in the Armed Forces)	Swedish standards SS 2607 and SMS 2238: 21,8 mm x 1/14 in., right thread, male	yes (civilian usage only; not used in the Armed Forces)	Swedish standards SS 2607 and SMS 2238: 3/8 in. x 1/19 in., right thread, male
Turkey	no		no	
United Kingdom	yes	BS 1319 / ISO	yes	BS 1319 / ISO
USA	yes		yes	

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