NATO OTAN

NATO STANDARDIZATION AGENCY
AGENCE OTAN DE NORMALISATION

NSA

5 September 2012 NSA1013(2012)LMC/4624

See CNAD AC/225 STANAG distribution

STANAG 4624 (Edition 1) - 30 MM X 173 AMMUNITION

Reference: PFP(NAAG)D(2010)0010-REV1 dated 12 April 2010 (Edition 1)

1. The enclosed NATO Standardization Agreement, which has been ratified by nations as reflected in the NATO Standardization Document Database (NSDD), is promulgated herewith.

2. The reference listed above is to be destroyed in accordance with local document destruction procedures.

ACTION BY NATIONAL STAFFS

3. National staffs are requested to examine their ratification status of the STANAG and, if they have not already done so, advise the Defence Investment Division through their national delegation as appropriate of their intention regarding its ratification and implementation.

Cihangir AKSIT, TUR/Civ
Director, NATO Standardization Agency

Enclosure:
STANAG 4624 (Edition 1)

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STANAG 4624
(Edition 1)

NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION AGENCY (NSA)

STANDARDIZATION AGREEMENT (STANAG)

SUBJECT: 30 MM X 173 AMMUNITION

Promulgated on 5 September 2012

Cihangir AKSIT, TUR Civ
Director, NATO Standardization Agency

STANAG 4624
(Edition 1)

RECORD OF AMENDMENTS

No.	Reference/Date of amendment	Date entered	Signature

EXPLANATORY NOTES

AGREEMENT

1. This STANAG is promulgated by the Director NATO Standardization Agency under the authority vested in him by the NATO Standardization Organisation Charter.

2. No departure may be made from the agreement without informing the tasking authority in the form of a reservation. Nations may propose changes at any time to the tasking authority where they will be processed in the same manner as the original agreement.

3. Ratifying nations have agreed that national orders, manuals and instructions implementing this STANAG will include a reference to the STANAG number for purposes of identification.

RATIFICATION, IMPLEMENTATION AND RESERVATIONS

4. Ratification, implementation and reservation details are available on request or through the NSAwebsites (internet http://nsa.nato.int; NATO Secure WAN http://nsa.hq.nato.int).

RESTRICTIONS TO REPRODUCTION

FEEDBACK

5. Any comments concerning this publication should be directed to NATO/NSA – Bvd Leopold III - 1110 Brussels - Belgium.

STANAG 4624
(Edition 1)

NATO STANDARDIZATION AGREEMENT

30 mm x 173 AMMUNITION

Annexes

A. Principles.
B. Nominal characteristics for 30 mm x 173 ammunition for Standardization.
C. Dimensions of cartridge and cartridge gauge.

Related Documents:

STANAG 4370	Environmental testing
STANAG 4423	Cannon Ammunition (12,7 to 40 mm) Safety and Suitability for Service Evaluation
STANAG 4439	Policy for Introduction, Assessment and Testing for Insensitive Munitions (IM) (DRAFT)
AAP-6	NATO Glossary of Terms and Definitions (English and French)
AOP-2	Identification of ammunition
MOPI	Manual of Proof and Inspection, 30 mm x 173 ammunition

AIM

1. The aim of this agreement is to standardize 30 mm x 173 ammunition to ensure interchangeability through the adoption of a standard type of ammunition for use in NATO nominated weapon systems identified in paragraph 5 of Annex A.

AGREEMENT

2. Participating nations agree that when 30 mm x 173 weapons are introduced they will, based on their operational requirements, use 30 mm x 173 cartridges as a basic standard type in accordance with this STANAG and related documents for NATO qualification of this ammunition.

DETAILS OF THE AGREEMENT

3. Participating nations agree on the principles (Annex A), characteristics (Annex B) and dimensions (Annex C) as specified in this STANAG.

IMPLEMENTATION OF THE AGREEMENT

4. This STANAG will be considered to have been implemented when the ratifying nations have introduced ammunition into their forces that has met the requirements of the MOPI for 30 mm x 173 ammunition.

a. The implementation of this STANAG shall be managed by a NATO body, currently AC/225 (LCG-1/SG-1), which will assess the compliance between the technical performance specification of this STANAG and the ammunition designs, and authorize the use of the NATO Symbol of Interchangeability.

b. This assessment will consist of tests of interchangeability conducted periodically at Test Centers approved by national authorities and assessed as acceptable by LCG/1-SG/1 in accordance with section 3 in the Manual Of Proof and Inspection (MOPI).

c. Implementing nations will provide test results to LCG-1/SG-1 for approval.

d. The nature and frequency of the tests, the test procedures and details of reference cartridges and of test equipment will be codified into a Manual of Proof and Inspection Procedures.

e. Implementing nations agree to test ammunition samples as specified in the Manual of Proof and Inspection Procedures mentioned in paragraph 4.d. above.

f. Implementing nations agree to observe the rules laid down by the NATO body regarding changes to ammunition designs for which the use of the NATO symbol of interchangeability has already been authorized.

ANNEX A TO
STANAG 4624
(Edition 1)

PRINCIPLES

1. This STANAG covers:

-30 mm x 173 combat ammunition [1]
-30 mm x 173 training ammunition

2. This ammunition shall comply with the following requirements:

   a. The nominal characteristics of Annex B and the dimensions given in Annex C.

   b. Manufacturing shall be in accordance with specifications prepared by national government agencies, which as a minimum should reflect the requirements of this agreement.

   c. Function with safety and adequate performance in nominated test weapons.

3. Interchangeability

   a. Under the scope of this STANAG, interchangeability is understood if the ammunition is simultaneously in conformance with applicable performance, functioning and safety criteria as detailed in the MOPI for 30 mm x 173 ammunition.

   b. A round of combat ammunition is considered ballistic interchangeable in the weapon systems if the ballistic characteristics measured at 2000 m for sub caliber ammunition and 1500 m for full caliber ammunition is within ± 0.5 mils of the values given in the generic firing table in the MOPI for the specified type of ammunition.

   c. A round of training ammunition is considered ballistic interchangeable in the weapon systems if the ballistic characteristics measured at 1000 m for both sub caliber and full caliber ammunition is within ± 1.0 mils of the values given in the generic firing table in the MOPI for the specified type of ammunition.

[1] Note 1: This STANAG **does not** cover programmable ammunition

4. Compliance with the above requirements shall be confirmed or validated by testing, based on the Manual of Proof and Inspection, on the basis of which the NATO Symbol of Interchangeability will be authorized.

Certifications will be made by AC225 (LCG/1 – SG/1), based on test reports of certified National Test Centers.

5. Nominated weapons in the sense of this STANAG are initially the 30 mm Bushmaster II /MK 44 and the 30 mm Mauser MK-30-2 weapon. Further test weapons may be proposed by other implementing nations. Nominations will be made by AC-225 following this proposal and the recommendation of AC-225 (LCG/1 – SG/1).

6. An implementing nation that is sponsoring a nominated test weapon, based on respective operational requirements, will make every effort to supply weapons to other requested nations on loan for test purposes. Loan of such equipment will be made under established NATO provisions and procedures/policies already in existence and in accordance with NATO Standardization Agency (NSA) requirements.

7. Implementing nations agree to observe the rules laid down by AC/225 (LCG/1 – SG/1) regarding changes to the ammunition designs for which the use of NATO Symbol of Interchangeability has already been authorized.

8. Stockpiles (stores) or ammunition of implementing nations shall be periodically inspected by respective approved national government surveillance methods in accordance with the Manual of Proof and Inspection. Ammunition (lots) not meeting minimum performance requirements of this agreement shall be considered no longer suitable for NATO use.

9. The implementing nations agree to furnish on request (under NATO security agreements) to the other ratifying nations, the available data on the performance (accuracy, perforation characteristics, lethal area, incendiary capacity, etc.) of the ammunition developed for their forces.

10. Reference ammunition used to verify barrel ballistics characteristics and test equipment is defined in Section 7 of the Manual of Proof and Inspection.

ANNEX B TO
STANAG 4624
(Edition 1)

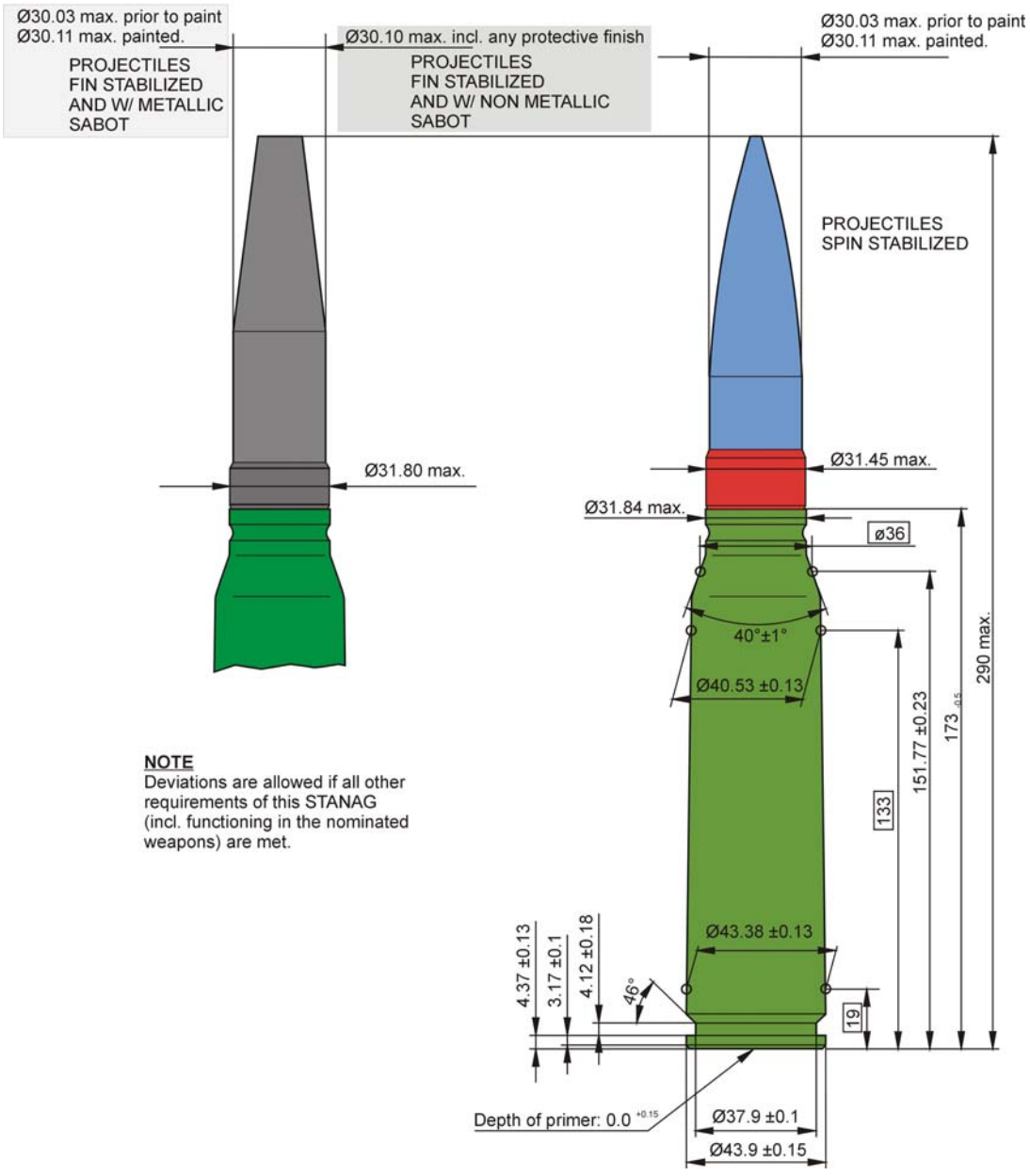
For detailed requirements regarding safety and performance and test-requirements for the 30 mm x 173 ammunition, see the specified chapters mentioned in the table below for each test in the MOPI and the MOPI in general.

1. General measurements Measurements: according to drawing at Annex C)	**REQUIREMENTS**	**MOPI REFERENCE**
2. Internal ballistics (a) Nominal muzzle velocity at T = +21 $\pm$ 2^{0}C	1100 m/s 1400 m/s	**22**
(b) Peak chamber pressure at T = -30 up to 50^{0}C (individual rounds)	Max. peak pressure for individual rounds shall not exceed 520 MPa.	**22**
(c) Action time at T = -30 up to 50^{0}C (individual rounds)	Max. action time shall not exceed 10 ms.	**22**
3. External ballistics a. Firing table check: according to Annex A of this STANAG	Ammunition shall be within +/- 0,5 mils of the values given in the generic firing tables of the specified type of weapon and ammunition in the nominated weapon.	**29**
(b) Dispersion	≤ 0,50 mils for full caliber rounds. ≤0,44 mils for sub-calibere rounds.	**23**
4. Safety requirement		
(a) Primer sensitivity	All fire when impacted with 0,510 kg ball dropped from 414 mm height. No fire when impacted with 0,510 kg ball dropped from 114 mm height.	**11**
(b) Function and casualty	Cyclic rate measured during burst firings shall meet the nominated weapon high rate of fire specified in section 5.	**30**

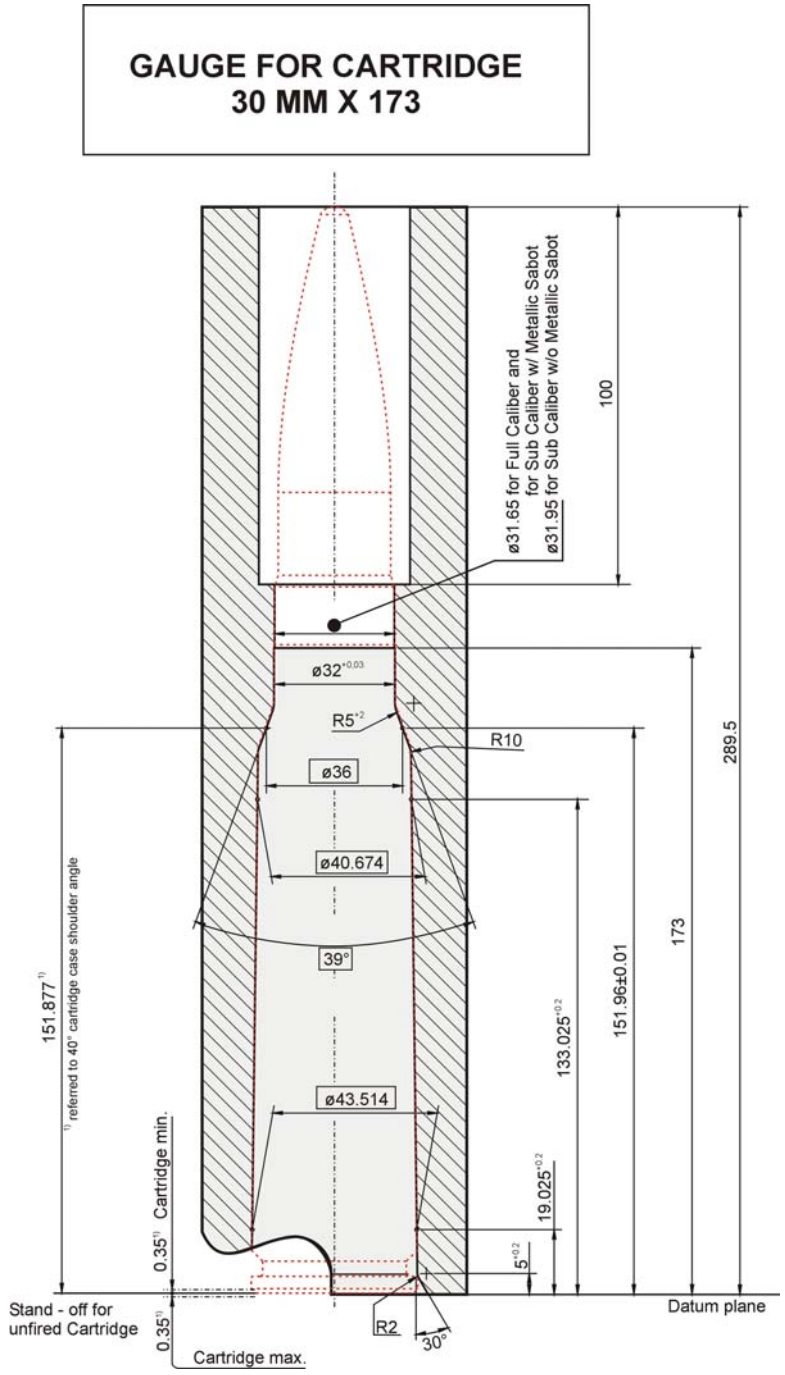
(c) Fuze non-arming	HE/HEI rounds, 10 m distance: 2,0 mm Aluminium EN AW 2024 T4, or 1,6 mm Aluminium EN AW 2024 T3 APHE/APHEI rounds: 5,0 mm Aluminium EN AW 2024 T4, or 3,0 mm steel S235 JR, Grade C MP rounds: 0,63 mm Aluminium EN AW 2024 T4, or 0,50 mm Aluminium EN AW 2024 T3	**25**
5. Special characteristics (for information only)		
(a) Tracer burn time, T = -30 up to 50^0C (individual rounds)	Minimum 3,0 s for full caliber rounds. Minimum 2,0 s for sub-caliber rounds.	**24**
(b) Time to self destruct: at T = $+20^0$C	Minimum 2,0 s before self destruct.	**27**
(c) Perforation	APFSDS, Spaced armor target 60°NATO: Front plate 10 mm HH (hardness class Z), 60 mm behind 30 mm RHA (hardness class C), 150 mm behind 0,5 mm aluminium witness plate.	**28**
(d) IM cartridges in accordance with STANAG 4439	AP/APDS/FAPIDS, Monobloc target 60°NATO: 25 mm RHA (hardness class C), 150 mm behind 0,5 mm aluminium witness plate.	

ANNEX C TO
STANAG 4624
(Edition 1)

CARTRIDGE
30 mm x 173



NOTE
Deviations are allowed if all other requirements of this STANAG (incl. functioning in the nominated weapons) are met.


GAUGE FOR CARTRIDGE
30 MM X 173
ø31.65 for Full Caliber and
for Sub Caliber w/ Metallic Sabot
ø31.95 for Sub Caliber w/o Metallic Sabot
100
289.5
ø32+0.03
R5+2
R10
ø36
ø40.674
39°
151.877 1)
1) referred to 40° cartridge case shoulder angle
173
151.96±0.01
133.025±0.2
ø43.514
19.025±0.2
5±0.2
0.35 1) Cartridge min.
Stand - off for
unfired Cartridge
0.35 1)
Cartridge max.
R2
30°
Datum plane