



**NSAI**  
Standards

Irish Standard Recommendation  
S.R. CWA 17094-1:2016

# Police firearms technology - Part 1: Police pistol and rifle ammunition features - Recommendations

**S.R. CWA 17094-1:2016**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

CWA 17094-1:2016

*Published:*

2016-12-21

*This document was published  
under the authority of the NSAI  
and comes into effect on:*

2017-01-16

ICS number:

95.060

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

S.R. CWA 17094-1:2016 is the adopted Irish version of the European Document CWA 17094-1:2016, Police firearms technology - Part 1: Police pistol and rifle ammunition features - Recommendations

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

**CEN**

**CWA 17094-1**

**WORKSHOP**

December 2016

**AGREEMENT**

---

ICS 95.060

English version

## Police firearms technology - Part 1: Police pistol and rifle ammunition features - Recommendations

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its Members.

This CEN Workshop Agreement is publicly available as a reference document from the CEN Members National Standard Bodies.

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



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

---

© 2016 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No.:CWA 17094-1:2016 E

<b>Contents</b>	<b>Page</b>
European foreword.....	4
1 Scope .....	6
2 Normative references .....	7
3 Terms, definitions and symbols.....	7
3.1 Terms and definitions .....	7
3.2 Symbols.....	10
4 Tactical principles .....	11
5 Applying requirements .....	11
5.1 General.....	11
5.2 Requirement categories .....	11
5.3 Measurement imprecision.....	13
5.4 Measurement reliability .....	13
5.5 Sampling.....	14
5.6 Conditioning of test sample.....	14
5.7 Test methods .....	14
5.8 Sentencing.....	14
5.9 Reference weapons.....	15
6 Requirements .....	16
6.1 Component requirements.....	16
6.1.1 Dimensions.....	16
6.1.2 Visual defects.....	16
6.1.3 Cartridge case markings.....	18
6.1.4 Bullet materials .....	18
6.1.5 Bullet seating tightness.....	18
6.1.6 Primer sensitivity .....	18
6.1.7 Ammunition waterproofing .....	22
6.2 Internal ballistics .....	22
6.2.1 Chamber pressure and pressure timing.....	22
6.2.2 Emission of energetic residue .....	23
6.2.3 Emission of harmful substances .....	23
6.3 Functional reliability .....	24
6.3.1 Malfunctions .....	24
6.4 External ballistic requirements.....	27
6.4.1 Velocity consistency.....	27
6.4.2 Tactical range .....	27
6.4.3 Trajectory consistency.....	27
6.4.4 Precision.....	28
6.5 Terminal ballistic requirements .....	28
6.5.1 General.....	28
6.5.2 Principles of testing methods .....	29
6.5.3 Body armour penetration .....	34
6.5.4 Soft target penetration.....	35
6.5.5 Heavy clothing penetration.....	36
6.5.6 Medium hardness barrier penetration .....	37
6.5.7 Hard barrier penetration .....	38

<b>6.5.8 Ricochet properties .....</b>	<b>39</b>
<b>6.5.9 Sentencing.....</b>	<b>42</b>
<b>6.6 Packaging and labelling requirements.....</b>	<b>43</b>
<b>6.6.1 Pallets .....</b>	<b>43</b>
<b>6.6.2 Transportation durability .....</b>	<b>43</b>
<b>6.6.3 Inner package.....</b>	<b>43</b>
<b>6.6.4 Multi-box package .....</b>	<b>43</b>
<b>6.6.5 Package labelling .....</b>	<b>43</b>
<b>6.7 Shelf life requirements - Guarantee of functionality .....</b>	<b>43</b>
<b>6.8 Documentation .....</b>	<b>43</b>
<b>Annex A Proposal for ammunition emission sample collection .....</b>	<b>46</b>
<b>A.1 Scope .....</b>	<b>46</b>
<b>A.2 Materials .....</b>	<b>46</b>
<b>A.3 Instrumentation .....</b>	<b>47</b>
<b>A.4 Method.....</b>	<b>47</b>
<b>A.5 Sentencing.....</b>	<b>48</b>
<b>Bibliography .....</b>	<b>49</b>

## **CWA 17094-1:2016 (E)**

### **European foreword**

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties on 15th October 2016, the constitution of which was supported by CEN following the public call for participation made on 23rd March 2015.

A list of the individuals and organizations which supported the technical consensus represented by the CEN Workshop Agreement is available to purchasers from the CEN Management Centre. These organizations are as follows:

#### **Industry members**

B&T AG

FABBRICA D'ARMI PIETRO BERETTA S.p.A.

Fiocchi Munizioni SpA Socio Unico

GLOCK Ges.m.b.H.

MEN Metallwerk Elisenhütte GmbH

RUAG Ammotec GmbH

Sellier and Bellot JSC

Steyr Mannlicher GmbH

#### **Police members**

Norwegian Police shared services

Swedish Police Authority

UK Home Office Centre for Applied Science and Technology (CAST)

#### **Chairman**

Jorma Jussila PhD, Adjunct Professor

The formal process followed by the Workshop in the development of the CEN Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN Management Centre can be held accountable for the technical content of the CEN Workshop Agreement or possible conflict with standards or legislation. This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its members.

The final text of this CWA was submitted to CEN for publication on 16th November 2016.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: AENOR, AFNOR, ASRO, BSI, COSMT, DIN, DS, ELOT, IBN/BIN, IPQ, MSZT, NEN, NSAI, NSF, ON, SEE, SIS, SFS, SNV, STRI, SUTN, UNI.



Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN Management Centre.

The following principles have been followed when defining the recommendations:

1. Official European and international standards has to be complied with. In case both exist, the European standard prevails. Therefore, for example, C.I.P. and ISO decisions will be followed.
2. An official standard has to be used as the basis for defining test methods when such a standard can be found.
3. Any test method has to be scientifically valid, reflect reality and be repeatable.
4. De facto standard-like agreements or in-house agreements will be used as reference material only recognizing the fact that alignment with their requirements will yield certain benefits. It is, however, not possible to directly refer to these agreements since it would mean allowing changes to our recommendations by some outside organization without our consent. Furthermore, the documentation of such agreements is not always available to all interested parties and does not necessarily comply with the first three principles above. Such agreements are for example NATO, FBI and German Police Technische Richtlinie. They all contain valuable ideas and provide valuable reference material.

## CWA 17094-1:2016 (E)

## 1 Scope

This document has been written for the purpose of defining the recommended features of police pistol and rifle ammunition. The document is intentionally written non-calibre specific referring to categories handgun, medium rifle and heavy rifle. Examples of calibres in these categories are 9mm Luger, 0,223 Rem and 308 Win.. Any calibre meeting the requirements is acceptable from the perspective of these recommendations.

Categories are defined as follows:

- handgun: used in pistols and submachine guns and having kinetic energy at 5 m distance at least 435 J and no more than 900 J and expected tactical range up to 50 m
- medium rifle: used in light assault type rifles and carbines and having kinetic energy at 100 m at least 500 J and no more than 2000 J and expected tactical range up to 100 m
- heavy rifle: used in sniper type rifles and having kinetic energy at 100 m at least 1800 J and expected tactical range up to and above 200 m

This document in its full extent can be used for type certification of a product. When using it to define the technical requirements for an invitation to tender a subset of the requirements can be selected and rated according to their importance to the procuring unit. A further subset can be defined for carrying out acceptance inspections of a manufacturing lot or for assessing and monitoring the current ammunition in use. It describes an open system of requirements for different types of ammunition recognizing that several different technical implementations may comply with the requirements and police needs. Different tactical environments may set differing priorities on requirements. Based on tactical views a suitable set of requirements can be chosen and their threshold values adjusted.

The service ammunition requirements are based on International Law principles that define the use of force guidelines. The means used and harm caused has to be in reasonable proportion to the objective and interests being protected. Any police action has to be reasonable and has to be performed without causing greater damage or harm than is necessary to accomplish the task. Any actions has to be justifiable in relation to the importance of the task and overall assessment of the situation. The taking of a human life cannot be an objective.

Any situation justifying the use of lethal force is an extreme one and law enforcement officials have an obligation to protect first the non-involved bystanders, themselves and lastly the offenders from unnecessary and unjustified danger and harm.

It can therefore be said that:

- it is not acceptable to cause unnecessary danger to the innocent by using bullets of inferior and untested terminal ballistic qualities;
- it is unacceptable to demand a police officer to risk his or her health or life by using inaccurate, unreliable or ineffective ammunition and firearms;
- it is unacceptable to cause the offender more severe injuries than are justifiable and necessary to stop unlawful activities;
- a firearm is a lethal weapon. Both using and not using it may lead to loss of life although killing a human being cannot be an objective. The use of a firearm is sometimes necessary and unavoidable in order to avoid more serious consequences;

It is recognized that different ammunition can be used for training purposes and field service. It is also recognized that exceptional circumstances may justify the use of other types of ammunition than the ones described in this document in which case a suitable subset of these recommendations can be used.

## 2 Normative references

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

EN 315, *Plywood - Tolerances for dimensions*

EN 636, *Plywood — Specifications*

EN ISO 6508-1, *Metallic materials - Rockwell hardness test - Part 1: Test method (ISO 6508-1)*

ISO 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 6425, *Divers' watches*

ANSI/SAE Z26.1 *American National Standard for Safety Glazing Materials for Glazing Motor Vehicles and Motor Vehicle Equipment Operating on Land Highways — Safety Standard*

ASTM D4169 *Standard Practice for Performance Testing of Shipping Containers and Systems (Random test option / Truck, Assurance level I test or equivalent)*

C.I.P. Decisions, Texts, Tables; Permanent International Commission for the Proof of Small Arms C.I.P. Commission Internationale permanente Pour l'Epreuve des Armes à Feu portatives, <http://www.cip-bobp.org>

## 3 Terms, definitions and symbols

### 3.1 Terms and definitions

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

#### 3.1.1

##### **percussion delay**

time from percussion mass release to the impact of firing pin on the percussion primer

#### 3.1.2

##### **barrel time**

time from firing pin impact on percussion primer to bullet exit from the barrel

#### 3.1.3

##### **cartridge**

complete ammunition assembly intended for a firearm and comprising of casing, percussion primer, powder and projectile

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- Looking for additional Standards? Visit Intertek Inform Infostore
  - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-