
Alkoholne zapore - Preskusne metode in zahtevane lastnosti - 1. del: Instrumenti z ustnikom in merilnikom alkohola v izdihanem zraku za uporabo v programih proti pijanim voznikom in za splošno preventivno uporabo

Alcohol interlocks - Test methods and performance requirements - Part 1: Instruments having a mouthpiece and measuring breath alcohol for drink-driving-offender programs and general preventive use

Alkohol-Interlocks - Prüfverfahren und Anforderungen an das Betriebsverhalten - Teil 1: Geräte mit Mundstück zur Messung des Atemalkohols für Programme mit Trunkenheitsfahrern und für den allgemein-präventiven Einsatz

Ethylotests antidémarrage - Méthodes d'essais et exigences de performance - Partie 1: Appareils équipés d'un embout qui mesurent le taux d'alcoolémie dans l'air expiré, pour programmes de lutte contre la conduite en état d'ivresse et à usage préventif général

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English Version

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This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2022-08-05.

It has been drawn up by CLC/BTTF 116-2.

If this draft becomes a European Standard, CENELEC 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.

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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1	Contents	Page
2	European foreword	5
3	Introduction	7
4	1 Scope	8
5	2 Normative references	8
6	3 Terms and definitions	9
7	4 General requirements	11
8	4.1 Blocking and not-blocking.....	11
9	4.2 Influence on the vehicle motor.....	11
10	4.3 Tampering.....	11
11	4.4 Concentration limit.....	11
12	4.5 Mouthpiece.....	12
13	4.6 Readiness.....	12
14	4.7 Data memory, download and evaluation.....	12
15	4.8 Retests.....	12
16	4.9 Recall.....	13
17	4.10 Override function.....	13
18	4.11 Combination with other systems.....	13
19	4.12 Communication integrity.....	13
20	4.13 Wireless communication.....	13
21	4.14 Basic functionality.....	13
22	5 General test methods	14
23	5.1 Samples.....	14
24	5.2 Preparation of alcohol interlock before testing.....	14
25	5.3 Sequence of tests.....	14
26	5.3.1 Alcohol interlock.....	14
27	5.3.2 Accessory devices.....	15
28	5.4 Normal conditions for tests.....	15
29	5.5 Functional test.....	15
30	6 Electrical tests	16
31	6.1 General.....	16
32	6.2 Supply voltage.....	16
33	6.3 Excess supply voltage.....	16
34	6.4 Short-circuit.....	17
35	6.5 Reversed polarity.....	17
36	6.6 Low-power-consumption state.....	17

37	6.7	Electrical disturbances (not applicable to parts of the alcohol interlock integrated	
38		into other vehicle systems).....	17
39	6.7.1	Supply lines.....	17
40	6.7.2	Lines other than supply lines.....	18
41	6.8	Electrostatic discharge.....	18
42	6.9	Electromagnetic compatibility.....	18
43	6.10	Functional test under normal conditions.....	18
44	7	Calibration curve.....	19
45	8	Durability tests.....	19
46	8.1	Temperature cycles.....	19
47	8.2	Condensed water.....	19
48	8.3	Vibrations.....	19
49	8.4	Drop test.....	20
50	9	Environmental tests.....	20
51	9.1	General.....	20
52	9.2	Temperature.....	20
53	9.3	Temperature and supply voltage.....	20
54	9.4	Temperature and humidity.....	21
55	9.5	Warm-up time.....	21
56	9.5.1	Temperature 20 °C.....	21
57	9.5.2	Temperature -5 °C.....	21
58	9.5.3	Temperature -20 °C.....	21
59	9.6	Pressure.....	22
60	9.7	Protection by enclosure.....	22
61	10	Breath sample.....	22
62	10.1	Volume.....	22
63	10.2	Flow.....	23
64	10.3	Exhalation time.....	23
65	10.4	Response time.....	23
66	11	Analytical specificity.....	23
67	11.1	Test gases.....	23
68	11.2	Cigarette smoke.....	24
69	12	Manipulation and circumvention.....	24
70	12.1	General.....	24
71	12.2	Pressurized air.....	24
72	12.3	Providing the sample with a mouthpiece attached.....	25
73	12.4	Providing the sample without a mouthpiece attached.....	25
74	12.5	Obstruction of the mouthpiece.....	25
75	12.6	Filter.....	26
76	12.6.1	Tube Filter.....	26

prEN 50436-1:2022 (E)

77	12.6.2	Disc Filter	26
78	12.7	Condensation	26
79	12.8	Water	26
80	12.9	Putting out of service.....	27
81	12.10	Removal of handset	27
82	12.11	Bypass	27
83	13	Timer.....	28
84	13.1	Start period.....	28
85	13.2	Restart period.....	28
86	13.3	Service reminder	28
87	13.4	Calibration interval	28
88	14	Long term behaviour.....	29
89	15	Instructions.....	29
90	15.1	Instructions for installation (applicable to alcohol interlocks for aftermarket 91 installation only).....	29
92	15.2	Instructions for use.....	30
93	15.3	Instructions for servicing the alcohol interlock	31
94	16	Test report.....	31
95	17	Labelling and marking	31
96	Annex A (normative)	Description of events.....	33
97	Annex B (informative)	Performance testing	37
98	Bibliography.....	oSIST prEN 50436-1:2022 https://standards.iteh.ai/catalog/standards/sist/19572e3e-0476-40a6-bbde-41e4771fbf54/osist-pren-50436-1-2022	38

99 **European foreword**

100 This document (prEN 50436-1:2022) has been prepared by CLC/BTTF 116-2 "Alcohol Interlocks".

101 This document is currently submitted to the enquiry.

102 The following dates are proposed:

- latest date by which the existence of this document has to be announced at national level (doa) dor + 6 months
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) dor + 12 months
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) dor + 36 months (to be confirmed or modified when voting)

103 This document will supersede EN 50436-1:2014 and EN 50436-2:2014 and all of their amendments
104 and corrigenda (if any).

105 prEN 50436-1:2022 includes the following significant technical changes with respect to
106 EN 50436-1:2014 and EN 50436-2:2014:

107 — EN 50436-2 was integrated into EN 50436-1 and all essential requirements incorporated into
108 EN 50436-1;

109 — Clause 1, Scope, was updated to consider the requirements from part 2;

110 — Clause 3, Terms and definitions, definitions were added for immobiliser, alcohol interlock, digital
111 interface, low-power-consumtio state and handset. Some existing definitions were updated;

112 — Clause 4, General requirements, was updated to reflect current communication requirements;

113 — Clause 6.7, Electrical disturbances, was updated;

114 — Clause 6.7.1, Supply lines, test levels were adjusted;

115 — Clause 6.9, Electromagnetic compatibility, a second note was added for the RED-directive;

116 — Clause 7; Calibration curve, the tolerance was changed from $\pm 0,02$ mg/l or ± 15 % of the nominal
117 value to $\pm 0,02$ mg/l or ± 10 % of the nominal value;

118 — Clause 8.4, Drop test, a description for the handset was added;

119 — Clause 9, Environmental test, the procedure for the test was revised and tolerances added where
120 necessary;

121 — Clause 10.2, Flow, tolerances were added to the test gas flow;

122 — Clause 11.1, Test gases, carbon dioxide was added;

prEN 50436-1:2022 (E)

- 123 — Clause 12.6, Filter, the complete clause was updated to distinguish between tube filter and disc
124 filter;
- 125 — Clause 12.7, Condensation, the clause was updated;
- 126 — Clause 12.8, Water, the clause was updated;
- 127 — Clause 12.10, Removal of handset, two additional test were added;
- 128 — Clause 15.1, Instructions for installation, a note with the reference to EN 50436-7 was added;
- 129 — Clause 17, Labelling and marking, further requirements were added.

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130 Introduction

131 The purpose of alcohol interlocks is to enhance traffic safety by preventing persons with alcohol
132 concentrations exceeding a set limit value from driving a motor vehicle. The EN 50436 series specifies
133 test methods and essential performance requirements for alcohol interlocks and gives guidance for
134 decision makers, purchasers and users.

135 The content and requirements of this part of EN 50436 are based on the experience and necessities of
136 using alcohol interlocks to prevent drink driving in several countries over several decades.

137 Therefore, alcohol interlocks to be used in all general preventive programmes and those for drink
138 driving offenders and legally regulated programmes monitored or controlled in a comparable way
139 should comply with this document.

140 Part 3 of this series of standards gives information on how to implement the usage of alcohol
141 interlocks.

142 The purpose of the EN 50436 series is to specify essential performance requirements and to provide
143 the respective test methods for available technologies. The technology of alcohol interlocks continues
144 to evolve, and further innovations can be expected. These could be considered in new parts or
145 revisions of this document.

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146 1 Scope

147 This document specifies test methods and performance requirements for alcohol interlocks having a
148 mouthpiece. It covers alcohol interlocks to be used in all general preventive programmes and those for
149 drink driving offenders and legally regulated programmes monitored or controlled in a comparable way.

150 This document can also be used for alcohol interlocks intended for other applications.

151 This document is directed at test laboratories and manufacturers of alcohol interlocks. It defines
152 requirements and test procedures for type testing.

153 Several parameters (such as alcohol concentration or breath volume) are specified in this document
154 for the purpose of type testing according to this document only. However, it can be necessary due to
155 national regulations or depending on user requests to set the values of the prescribed parameters
156 differently when the alcohol interlocks are in use.

157 This document also applies to alcohol interlocks integrated into other control systems of the vehicle as
158 well as to accessory devices connected to the alcohol interlock.

159 This document does not apply to

- 160 — instruments measuring the alcohol concentration in the ambient air in the vehicle,
- 161 — alcohol interlocks not having a mouthpiece,
- 162 — methods of installation and connections to the vehicle.

163 2 Normative references

164 The following documents are referred to in the text in such a way that some or all of their content
165 constitutes requirements of this document. For dated references, only the edition cited applies. For
166 undated references, the latest edition of the referenced document (including any amendments) applies.

167 EN 60068-2-78, *Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state*
168 *(IEC 60068-2-78)*

169 EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

170 ISO 7637-2, *Road vehicles — Electrical disturbances from conduction and coupling — Part 2:*
171 *Electrical transient conduction along supply lines only*

172 ISO 7637-3, *Road vehicles — Electrical disturbances from conduction and coupling — Part 3:*
173 *Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines*

174 ISO 10605, *Road vehicles — Test methods for electrical disturbances from electrostatic discharge*

175 ISO 16750-1, *Road vehicles — Environmental conditions and testing for electrical and electronic*
176 *equipment — Part 1: General*

177 ISO 16750-2:2012, *Road vehicles — Environmental conditions and testing for electrical and electronic*
178 *equipment — Part 2: Electrical loads*

179 ISO 16750-3:2012, *Road vehicles — Environmental conditions and testing for electrical and electronic*
180 *equipment — Part 3: Mechanical loads*

181 ISO 16750-4:2010, *Road vehicles — Environmental conditions and testing for electrical and electronic*
182 *equipment — Part 4: Climatic loads*

183 3 Terms and definitions

184 For the purposes of this document, the terms and definitions given in EN 50436-4 and the following
185 apply.

186 3.1

187 immobiliser

188 device which is intended to prevent the vehicle being driven away powered by its own motor

189 Note 1 to entry: In this document the expression motor includes combustion engine, electric motor or hybrid
190 power unit.

191 3.2

192 alcohol interlock

193 device that acts as a vehicle immobiliser which, when installed, can be brought into the not blocking
194 state only after the presentation and analysis of an accepted breath sample with an alcohol
195 concentration below a limit value

196 3.3

197 breath alcohol concentration

198 mass concentration of ethanol, expressed in mg/l (milligram ethanol per litre breath air), in a breath
199 sample delivered into an alcohol interlock

200 3.4

201 breath sample

202 breath air sample taken under forced expiration

203 3.5

204 accepted breath sample

205 breath sample fulfilling set requirements for volume, flow, exhalation time and other human breath
206 sample characteristics

207 Note 1 to entry: The acceptance of a breath sample is independent from the alcohol concentration.

208 3.6

209 breath test

210 providing a breath sample to an alcohol interlock

211 3.7

212 mouthpiece

213 part through which the breath sample is delivered into the alcohol interlock

214 3.8

215 blocking state

216 state in which the alcohol interlock immobilises the vehicle

217 3.9

218 not-blocking state

219 state in which the alcohol interlock does not immobilise the vehicle

220 3.10

221 breath alcohol concentration limit

222 set value of the breath alcohol concentration at or above which the alcohol interlock records a failed
223 test

224 3.11

225 ready for test

226 indication that the operating parameters of the alcohol interlock are met

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prEN 50436-1:2022 (E)

- 227 **3.12**
 228 **initial test**
 229 breath test provided while the alcohol interlock is in the blocking state that if the alcohol concentration
 230 is below the breath alcohol concentration limit will enable the alcohol interlock to go from blocking to
 231 not blocking state
- 232 **3.13**
 233 **retest**
 234 breath test provided while the alcohol interlock is in the not-blocking state
- 235 Note 1 to entry: The retest function is one of the measures used in the detection of circumvention.
- 236 **3.14**
 237 **retest period**
 238 time interval after the retest request to provide an accepted breath sample
- 239 **3.15**
 240 **start period**
 241 time interval after an accepted breath sample with an alcohol concentration below the breath alcohol
 242 concentration limit has been delivered, during which the alcohol interlock remains in the not-blocking
 243 state
- 244 **3.16**
 245 **restart period**
 246 time interval after the ignition switch or equivalent is switched off and during which the alcohol interlock
 247 remains in the not-blocking state
- 248 **3.17**
 249 **override**
 250 permissible method of causing the alcohol interlock to enter the not-blocking state without providing a
 251 breath sample
- 252 Note 1 to entry: The override function is for use in exceptional circumstances only.
- 253 **3.18**
 254 **bypass**
 255 unauthorised method of causing the vehicle to ignore the alcohol interlock blocking state
- 256 **3.19**
 257 **tampering**
 258 unauthorised change to or interference with the alcohol interlock or its installation in the vehicle or its
 259 functioning
- 260 **3.20**
 261 **data memory**
 262 record of breath test results and other events with date and time stored in the internal memory of the
 263 alcohol interlock
- 264 **3.21**
 265 **supply voltage**
 266 voltage obtained from the electric power source of the vehicle for operation of the alcohol interlock
- 267 **3.22**
 268 **calibration interval**
 269 time period between calibrations during which the alcohol interlock fulfils the stability requirements for
 270 the measurement of the breath alcohol concentration

- 271 **3.23**
 272 **service reminder**
 273 notice by the alcohol interlock to remind the driver of a service requirement
- 274 **3.24**
 275 **recall**
 276 response of the alcohol interlock due to a service requirement of the device or an action of the driver
 277 which requires service of the alcohol interlock or downloading of the data memory
- 278 **3.25**
 279 **manufacturer**
 280 person or organisation responsible for the design, construction and/or production of the alcohol
 281 interlock
- 282 **3.26**
 283 **aftermarket installation**
 284 any installation of an alcohol interlock in a vehicle after the original production of a vehicle
- 285 **3.27**
 286 **digital interface**
 287 shared boundary used for the exchange of digital information
- 288 **3.28**
 289 **low-power-consumption state**
 290 state in which as less power as possible is consumed
- 291 **3.29**
 292 **handset**
 293 entire component of the alcohol interlock into which the breath sample is delivered into the mouthpiece
- 294 **4 General requirements**
- 295 **4.1 Blocking and not-blocking**
- 296 Not-blocking state shall be achieved after delivery and analysis of an accepted breath sample with a
 297 breath alcohol concentration below a limit value.
- 298 The alcohol interlock shall return to the blocking state after expiration of the restart period (see 13.2)
 299 without supplementary action from the driver.
- 300 **4.2 Influence on the vehicle motor**
- 301 The alcohol interlock shall not cause a running vehicle motor to stop, even in the case of a missed or a
 302 failed retest.
- 303 **4.3 Tampering**
- 304 The alcohol interlock shall be designed and manufactured such that, when installed in a vehicle,
 305 according to the manufacturer's instructions, it cannot be opened or the electrical connection cannot be
 306 modified without visible changes.
- 307 The access to the data memory or to means for setting parameters or to adjustment possibilities shall
 308 be designed so as to deter unauthorised or inadvertent interference.
- 309 **4.4 Concentration limit**
- 310 The nominal breath alcohol concentration limit of the alcohol interlock shall be at least 0,09 mg/l.

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