TRANSLATION OF THE SCOPE OF ACCREDITATION OF THE TESTING LABORATORY No. AB 128

Issued by:
POLISH CENTRE FOR ACCREDITATION
01-382 Warszawa, Szczotkarska 42

Issue No. 20, Date of issue 10th January 2022

NOTE: This scope of accreditation is BOSMAL's translation. In the event of discrepancies, only the original PCA document is binding. You can find it at http://www.pca.gov.pl and here

AB 128	Name and address: **BOSMAL AUTOMOTIVE RESEARCH & DEVELOPMENT INSTITUTE LTD** **TESTING LABORATORY** **Sarni Stok 93** **43-300 Bielsko-Biała**
Identification code	**Field of testing and item:**
A/6; A/26	Acoustic and vibration tests of electrical products and equipment, vehicles
C/4; C/8; C/9; C/10, C/12; C/17; C/21; C/23, C/45; C/46; C/48	Chemical tests of chemical products, construction products and materials, air, fuels, glass and ceramics, other products, plastic and rubber products, textiles and leather, paints and varnishes, lubricating materials, other petroleum products
E/6; E/26, E34, E/35, E/54	Electric and electronic tests of electrical and electronic products and equipment and vehicles
F/6, F/54	Electromagnetic compatibility (EMC) tests of electrical, and electronic products and equipment
G/6; G/8; G/21; G/23; G/26, G/54	Tests concerning environmental engineering of electrical and electronic equipment, construction products and materials, plastic and rubber products, textiles and leather and vehicles
H/6; H/17; H/21; H/23	Fire tests of electrical products and equipment, other products, plastic and rubber products, textiles and leather
J/6; J/8; J/17; J/21; J/23; J/26; J/54	Mechanical tests, metallographic tests of electrical and electronic products and equipment, construction products and materials, plastic and rubber products, textiles and leather and vehicles

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*) The identification code according to the Annex to document DAB-07, available at PCA website **www.pca.gov.pl**

This document is translation of an annex to accreditation certificate No AB 128 of 10.01.2022
Accreditation cycle from 17.07.2019 to 17.07.2023
The status of accreditation and validity of the scope of accreditation can be confirmed at PCA website **www.pca.gov.pl**

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AB 128	Name and address: **BOSMAL AUTOMOTIVE RESEARCH & DEVELOPMENT INSTITUTE LTD** **TESTING LABORATORY** **Sarni Stok 93** **43-300 Bielsko-Biała**
Identification code	**Field of testing and item:**
L/6; L/8; L/17; L/21; L/26	Non-destructive testing of metal products and materials, electrical products and equipment, construction products and materials, other products, plastic and rubber products and vehicles
N/6; N/8; N/10; N/12; N/13; N/19; N/21; N/23; N/26; N/35; N/54	Tests of physical properties of electrical and electronic equipment, construction products and materials, glass and ceramics, machinery and devices, plastic and rubber products, personal protection equipment, fuels, lubricants, textiles and leather, vehicles
Q/8; Q/21; Q/23	Sensory tests of construction products and materials, plastic and rubber products, textiles
Conformity assessment within to the Act of 20 June 1997 – Law on Road Traffic	

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Materials Testing Department (BM) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Rubber and plastic products	Material identification Infrared spectrometric method (IR)	BOSMAL/I-7-41/06
	Hardness: Sh A, Sh D Range (30 to 90)ºSh Shore method	PN-EN ISO 868:2005 met. A and D ISO 48-4:2018 met. A and D ISO 7619-1:2010 met. A and D DIN 53505:2000 met. A and D
Rubber products	Hardness: Range: (30 to 100) IRHD	ISO 48-2:2018 met. M (mikro)
	Strength properties: - tensile strength (up to 5 kN)	PN-ISO 37:2007 PN-ISO 37:2007/AC1:2008 ISO 37:2017
	- tear strength (up to 5 kN)	ISO 34-1:2015
	- compression set temperature range: +23ºC - 250ºC	ISO 815-1:2019
	Hysteresis in compression stresses	PN-C-04289:1987
	Resistance to ageing: - in air - in liquids - in ozone atmosphere (static method) 25pphmto 200pphm	ISO 188:2011 ISO 1817:2015 ISO 1431-1:2012 (p.10)
	Density Gravimetric method	ISO 2781:2018
	Brittleness temperature Range: up to -70ºC Impact method	ISO 812:2017
Plastics, Plastic products	Density Immersion method Range: 0.9 – 2 g/cm^3	PN-EN ISO 1183-1:2019-05 met. A
	Rockwell hardness Scales: HRR, HRL, HRM, HRE Rockwell method	PN-EN ISO 2039-2:2002
	Karl-Fischer water content Range: (0.05 - 1.5)% Coulometric titration method	PN-EN ISO 15512:2019-07 met. B2
	Melt Mass-Flow Rate and Melt Volume-Flow Rate (MFR and MVR) Range: (2,16 – 21,6) kg maximum temperature: 300 ºC Plastometer method	PN-EN ISO 1133-1:2011 ASTM D1238-20

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Plastics	Impact properties Charpy method Range: max. impact energy 7,5 J Type 1 specimens: - notched: notch type A (1eA) - unnotched (1eU)	PN-EN ISO 179-1:2010
	Impact properties Izod method Range: max. impact energy 5,5 J Specimens: - notched: notch type A - unnotched	PN-EN ISO 180:2020-05
	Hardness Ball indentation method	PN-EN ISO 2039-1:2004
	Tensile strength Range up to 30 kN	PN-EN ISO 527-2:2012
	Flexural strength Flexural modulus Deformation at maximum stress Range up to 30 kN Flexural test	PN-EN ISO 178:2019-06
	Water absorption	PN-EN ISO 62:2008 p. 6.3, 6.4, 6.6
	Content of volatile substances (including water)	BOSMAL/I-7-49/05
Thermoplastic materials	Heat resistance (HDT) Deflection temperature Range up to 300^{o}C Method A (1.80 MPa)	PN-EN ISO 75-1:2020-09 PN-EN ISO 75-2:2013-06
Thermoplastic materials, thermoplastic products	Heat resistance: Vicat softening temperature (up to 300^{o}C)	PN-EN ISO 306:2014-02
Plastics, plastic products Rubber, rubber products	Melting point and glass transition temperature Range: up to 400°C Differential scanning calorimetry method (DSC)	BOSMAL/I-7-87/03 ISO 11357-2:2020 PN-EN ISO 11357-3:2018-06
Plastics, plastic products Rubber, rubber products	Polymers decomposition temperature and decomposition rate, Measurement of volatile substances, additives and/or fillers quantity in polymer Range: (25 to 1000)°C Thermogravimetric analysis (TGA)	PN-EN ISO 11358-1:2014-09 PV 3927:2017-11 ASTM D6370-99 (2019)

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Products made of: metal, plastic, textiles, nonwoven materials, foams, rubber, paint-coated, galvanic-coated and uncoated	Resistance to light (Fade-Ometer)	PN-EN ISO 4892-2:2013-06 met.B PN-EN ISO 16474-1:2014-02 PN-EN ISO 16474-1:2014-02, met.B PN-EN ISO 105-B02:2014-11 GMW 14162:2016 met. A, B, D
	Resistance to weather conditions (Weather-Ometer)	PN-EN ISO 4892-2:2013-06, met. A PN-EN ISO 16474-1:2014-02 PN-EN ISO 16474-1:2014-02, met.A PN-EN ISO 105-B04:1999
	Gloss value at 20º, 60º and 85º Range: (0 to 199) gloss units	PN-EN ISO 2813:2014-11
	Resistance to humidity	PN-EN ISO 6270-1:2018-02 PN-EN ISO 6270-2:2018-02 PN-EN 60068-2-78:2013-11
	Resistance to climatic conditions	PN-EN 60068-2-14:2009, Test Nb
	Resistance to impact (Pistol Test) Dynamic method with a ball impact Range: (1 to 90) N	ISO 4532:1991
	Determination of stone-chip (grit) resistance of coatings. Multi-impact and single impact method	PN-EN ISO 20567-1:2017-03 DIN 55996-1:2001-04
	Leak test by water immersion method Method 2	PN-EN 60068-2-17:2001, Test Qc
Plastics, products made of plastics, textiles, nonwovens, foams, paint-coated, galvanic-coated and uncoated Rubber, rubber products	Flammability Burning rate Range: (0 to 300) mm/min Horizontal burning method	PN-ISO 3795:1996 UN ECE Regulation No. 118 Series 03, Appendix 6 DIN 75200:1980-09 FMVSS 302:1999 TL 1010:2008-01
	Fogging Range: (0 to 199) gloss units Gloss method Range: (0.1 to 5.0) mg Gravimetric method	DIN 75201:2011-11 SAE J1756:2006-08 PV 3015: 2019-03
	Formaldehyde emission Range: (0.3 - 25) mg/kg Spectrophotometric method	VDA 275 (07.1994) PV 3925:2021-01 VCS 1027,2739 (03.2004) FLTM BZ 156-01:2011 Part A
	Formaldehyde emission Range: (0.3 - 60) mg/kg High-performance liquid chromatography method with diode-array detection (HPLC-DAD)	PV 3925:2021-01
	Determination of organic compounds emissions (TVOC) from materials Range: TVOC: (0.1 - 3700) µgC/g individual emission value: (0.1 - 120) µgC/g Gas chromatography method with headspace analysis, flame ionization detection and mass spectrometry detection HS-GC-MS/FID method	BOSMAL/I-7-64/04 VDA 277 (01.1995) FLTM BZ 157-01:2011 PV 3341:1995-03 VCS 1027,2749 (03.2004)

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Plastics, products made of plastics, textiles, nonwovens, foams, paint-coated, galvanic-coated and uncoated Rubber, rubber products	Identification of organic compounds GC-MS method with the use of NIST 14 mass spectral library	BOSMAL/I-7-64/04
	Determination of organic compounds emissions (VOC, FOG) from materials Range: VOC: (0.1 - 15500) µg/g individual VOC value: (0.1 - 300) µg/g FOG: (0.7 - 45000) µg/g individual FOG value: (0.7 - 300) µg/g Gas chromatography method with thermodesorption, flame ionization detection and mass spectrometry detection (TD-GC-MS/FID) method	BOSMAL/I-7-64/04 VDA 278 (10.2011) VDA 278 (05.2016)
	Ash content Range: (0.010 – 75.00)% Gravimetric method	PN-EN ISO 3451-1:2019-04 met. A PN-EN ISO 1172:2002 met. A
	Odour Range (1 to 6) grades Sensoric method	VDA 270:2018 PV 3900:2019-04 FLTM BO 131-03:2017
Plastics, products made of plastics, textiles, nonwovens, foams and leather Rubber, rubber products	Volatile organic compounds emission (VOC) Chamber method Determination of total volatile organic compounds (VOC) concentration Range: (0.1 to 30) ppm Flame-ionisation detection method (FID)	ISO 12219-4:2013 ISO 12219-6:2017 GS 97014-3:2014-04 VDA 276-1:2005 PV 3942:2021-11

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Plastics, products made of plastics, textiles, nonwovens, foams and leather Rubber, rubber products	Determination of formaldehyde and other carbonyl compounds emitted in environmental chamber Range: Formaldehyde (2.0 - 4800) µg/m^3 Acetaldehyde (2.0 - 4800) µg/m^3 Acetone (1.0 - 4800) µg/m^3 Acrolein (2.0 – 4800) µg/m^3 Isovaleraldehyde (2.0 - 4800) µg/m^3 Crotonaldehyde (2.0 - 4800) µg/m^3 Propionaldehyde (2.0 - 4800)µg/m^3 m,p-Tolualdehyde (2.0 - 4800) µg/m^3 o-Tolualdehyde (3.0 - 4800) µg/m^3 Valeraldehyde (2.0 - 4800) µg/m^3 Benzaldehyde (2.0 - 4800) µg/m^3 2-Butanone (2.0 - 4800) µg/m^3 Butyraldehyde (3.0 - 4800) µg/m^3 2,5-Dimethylbenzaldehyde (2.0 - 4800) µg/m^3 Cyclohexanone (3.0 - 4800) µg/m^3 Hexanal (2.0 - 4800) µg/m^3 Heptanal (2.0 - 4800) µg/m^3 Octanal (3.0 - 4800) µg/m^3 Nonanal (2.0 - 4800) µg/m^3 Decanal (2.0 - 4800) µg/m^3 Metacroleine (2.0 - 4800) µg/m^3 High performance liquid chromatography method with diode-array detection (HPLC-DAD)	ISO 16000-3:2011 BOSMAL/I-7-89/02
	Determination of volatile organic compounds (VOC) emitted in environmental chamber Range: - total (0.050 to 10.0) mg/m3 - individual (0.8 - 500) µg/m3 Gas chromatography with thermal desorption flame-ionization detection and mass spectrometry (TD-GC-FID-MS)	ISO 16000-6:2021
	Identification of organic compounds Gas chromatography method with thermal desorption and mass spectrometry (TD-GC-MS) with use of NIST14 mass spectra library	ISO 16000-6:2021

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Products made of: metal, plastic, paint-coated, galvanic-coated and uncoated	Lead and Cadmium content Range: Pb (0.002 to 0.1) % Cd (0.001 to 0.1) % Inductively coupled plasma optical emission spectrometry (ICP-OES) method	BOSMAL/I-7-43/06
Galvanic coatings and paint coatings on metal and plastic (metal products and plastic products)	Chromium (Cr VI) content Range: (0.01 to 1) µg/cm² Spectrophotometric method	PN-EN ISO 3613:2011
	Corrosion resistance to variable environmental salt-humid conditions	ASTM G85–19, met. A3 PN-EN ISO 11997-1:2017-10, cycle B VDA 621-415:1982
	Resistance to corrosion in salt spray NSS method	ISO 9227:2017 ASTM B117-19 DIN 50021:1988-06 FIAT 50180 (12.2007)
	Resistance to corrosion in salt spray AASS method	ISO 9227:2017 DIN 50021:1988-06 FIAT 50180 (12.2007)
	Resistance to corrosion in salt spray CASS method	ISO 9227:2017 DIN 50021:1988-06 FIAT 50180 (12.2007)
	Corrosion resistance to sulphur dioxide with general condensation of moisture	PN-EN ISO 6988:2000 PN-EN ISO 3231:2000
	Adhesion by: Cross-cut method	PN-EN ISO 2409:2021-03
	Adhesion by: Pull-off method	PN-EN ISO 4624:2004 ISO 4624:2016
	Shot peening, bending, reel in, scratch, thermal shocks methods	BOSMAL/I-7-63/03
Galvanic coatings and paint coatings on metal (metal products)	Coating thickness Range: (0 to 1000) µm Magnetic method	PN-EN ISO 2178:2016-06 PN-EN ISO 2361:1998 PN-EN ISO 2808:2020-01, met. 7B2
	Coating thickness Range: (10 to 1000) µm Eddy-current method	PN-EN ISO 2808:2020-01, met. 7C
Galvanic coatings and paint coatings on metal and plastic (metal products and plastic products)	Coating thickness Microscopy method	PN-EN ISO 1463:2021-10 PN-EN ISO 2808:2020-01, met. 6A
	Resistance to liquids	PN-EN ISO 2812-1:2018-01
	Flexibility Bend test on mandrel method	PN-EN ISO 1519:2012
	Hardness Pencil method	PN-EN ISO 15184:2020-07
Galvanic coatings and paint coatings on metal and plastic (metal products and plastic products)	Impact (deformation) resistance Falling weight method	PN-EN ISO 6272-1:2011
	Abrasion resistance Free falling abrasion material method	PN-C-81516:1976 p. 2.2 (method A)
	Taber method	ISO 15082:2016 PN-EN ISO 7784-2:2016-05
	Resistance to variable temperature	PN-EN 60068-2-14:2009 Test Na

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Metal products	HBW hardness Range: 70 to 200 HBW1/10 70 to 200 HBW2.5/62.5 100 to 450 HBW2.5/187.5 100 to 200 HBW5/250 100 to 450 HBW5/750 100 to 450 HBW10/3000 Brinell method	PN-EN ISO 6506-1:2014-12
	Rockwell hardness Range: 50 to 88 HRA 20 to 100 HRB 20 to 70 HRC Rockwell method	PN-EN ISO 6508-1:2016-10
	HV hardness Range: 100 to 750 HV5 100 to 750 HV10 100 to 750 HV30 Vickers method	PN-EN ISO 6507-1:2018-05
	HV microhardness Range: 250 to 1000HV0.05 100 to 1000 HV0.1 100 to 1000HV0.3 50 to 1000HV0.5 50 to 1000HV1 Vickers method	PN-EN ISO 6507-1:2018-05
	Absorbed energy: KV_2 and KU_2. Range: Initial energy of the pendulum hammer: 300 J Test temperature: - 23 ±5°C - reduced to -40°C Charpy pendulum impact test	PN-EN ISO 148-1:2017-02
	Mechanical properties: - yield strength, R_e - proof strength, plastic extension, R_p - tensile strength, R_m - ultimate elongation, A - reduction of area at fracture, Z Range: up to 150 kN Tensile test at room temperature	PN-EN ISO 6892-1:2020-05, met. A & B
	Grain size Reference patterns method Secant method Grain counting method Optical microscopy method	PN-EN ISO 643:2020-07 ASTM E112-13

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Metal products	Microstructure: Range: Microstructure of raw materials, cast materials, annealed materials, after heat treatment, after thermochemical treatment, after plastic forming Optical microscopy method	BOSMAL/I-7-44/05 PN-EN ISO 945-1:2019-09 PN-H-04661:1975 PN-H-04505:1966 ASTM A247-19
	Macrostructure: - surface defects, - internal defects Visual assessment method Optical microscopy method	BOSMAL/I-7-45/05
Metal tube (in full section) (ϕ_{max}= 50 mm)	Formability Flattening method	PN-EN ISO 8492:2014-02
	Formability Drift-expanding method	PN EN ISO 8493:2005
Fasteners: bolts, nuts (M5 up to M22), screws, washers	Surface discontinuities Visual assessment method	PN-EN ISO 6157-2:2006 PN-EN 26157-1:1998
	Thread discontinuities Visual assessment method Optical microscopy method	PN-EN 26157-3:1998
	Mechanical properties Tensile method	PN-EN ISO 898-1:2013-06, w/o p.9.13 PN-EN ISO 898-5:2012 w/o p.9.4 PN-EN 28839:1999 PN-EN ISO 6157-2:2006 PN-EN ISO 898-2:2012 PN-EN ISO 898-2:2012/Ap1:2016-05 PN-EN ISO 2320:2016-02, w/o p.9.3
Products made of ferromagnetic materials	Materials surface discontinuities Magnetic-particle method (MT)	BOSMAL/I-7-08/08
Sintered metal products	Apparent hardness	PN-EN ISO 4498:2010
	Range: 70 to 200 HBW1/10 70 to 200 HBW2.5/62.5 100 to 450 HBW2.5/187.5 100 to 200 HBW5/250 100 to 450 HBW5/750 100 to 450 HBW10/3000 Brinell method	PN-EN ISO 6506-1:2014-12
	Range: 50 to 88 HRA 20 to 100 HRB 20 to 70 HRC Rockwell method	PN-EN ISO 6508-1:2016-10
	Range: 100 to 750 HV5 100 to 750 HV10 100 to 750 HV30 Vickers method	PN-EN ISO 6507-1:2018-05
	Radial crushing strength Compression method	PN-EN ISO 2739:2012
	Density Gravimetric method	PN-EN ISO 2738:2001 p. 9.1
	Oil content Gravimetric method	PN-EN ISO 2738:2001 p. 9.2
	Open porosity Gravimetric method	PN-EN ISO 2738:2001 p. 9.3

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Iron alloys products	Inclusion content in steel Method A Optical microscopy	PN-H-04510:1964 ASTM E45-18a
	Depth of decarburization Metallographic method Hardness profile method	PN-EN ISO 3887:2018-03
	Effective depth of hardened layer after surface heat treatment Hardness profile method	PN-ISO 3754:1999
	Effective depth of carburized and hardened layer Hardness profile method	PN-EN ISO 2639:2005
	Carbon and sulfur content Range: C (0.01 to 4.5) % S (0.005 to 0.6) % High temperature combustion and IR detection method	PN-EN ISO 15350:2010
	Nitrogen content Range: (0.005 to 0.5) % Thermal conductivity method	PN-EN ISO 10720:2009
	Content of: Mn, Si, P, Cr, Ni, Mo, Co, Al, Cu, Pb, Ti, Nb, V, Sn Range: Mn (0.002 to 4.0) % Si (0.030 to 3.5) % P (0.010 to 1.0) % Cr (0.002 to 25.0) % Ni (0.002 to 12.0) % Mo (0.010 to 10,0) % Co (0.005 to 10.0) % Al (0.0050 to 10.0) % Cu (0.0050 to 6.0) % Pb (0.10 to 0.5) % Ti (0.010 to 1.5) % Nb (0.010 to 2.0) % V (0.010 to 2.0) % Sn (0.010 to 0.40) % Inductively coupled plasma optical emission spectrometry (ICP-OES) method	BOSMAL/I-7-43/06
Iron alloys products	Content of: Mn, Si, P, Cr, Ni, Cu, W, V, Al, Ti, Mo, Nb, Co, Sn Range: Mn (0.020 to 12.0) % Si (0.10 to 4.0) % P (0.020 to 1.0) % Cr (0.020 to 26.0) % Ni (0.010 to 22.0) % Cu (0.020 to 4.1) % W (0.020 to 18.0) % V (0.020 to 4.0) % Al (0.010 to 1.5) % Ti (0.005 to 1.5) % Mo (0.010 to 5.0) % Nb (0.010 to 2.5) % Co (0.20 to 12.5) % Sn (0.010 to 0.40) % Wavelength dispersive X-ray fluorescence spectrometry (WD-XRF) method	BOSMAL/I-7-90/02

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Copper alloys products	Content of: Be, Sn, Pb, Fe, Mn, Si, Al, Ni, P, Zn Range: Be: (0.010 to 2.5) % Sn (0.005 to 10) % Pb (0.005 to 12) % Fe (0.010 to 6.5) % Mn (0.010 to 6) % Si (0.030 to 5) % Al (0.005 to 6) % Ni (0.010 to 10) % P (0.010 to 0.5) % Zn (0.030 to10) % Inductively coupled plasma optical emission spectrometry (ICP-OES) method	BOSMAL/I-7-43/06
	Content of: P Range: (0.005 to 1.3) % Spectrophotometric method	PN-H-04740-11:1981 p.1 PN-H-04745-05:1981 p.1
	Average grain size Comparison method	PN-EN ISO 2624:1997
Aluminum and its alloys products	Content of: Si, Mg, Mn, Cu, Ni, Fe, Sn, Zn, Pb, Cr, Ti, Mo, V, Zr Range: Si (0.030 to 15) % Mg (0.010 to 12) % Mn (0.010 to 2.5) % Cu (0.005 to 6) % Ni (0.010 to 2.5) % Fe (0.20 to 2) % Sn (0.005 to 0.5) % Zn (0.010 to 5) % Pb (0.005 to 2.5) % Cr (0.005 to 0.6) % Mo (0.050 to 1.0) % V (0.010 to 0.50) % Zr (0.010 to 0.80) % Inductively coupled plasma optical emission spectrometry (ICP-OES) method	BOSMAL/I-7-43/06
Aluminum and its alloys products	Content of: Fe, Si, Cu, Zn, Mg, Mn, Ni, Pb, Sn, Cr, Ti, Zr Range: Fe (0.10 to 1.0) % Si (0.10 to 1.5) % Cu (0.010 to 5.0) % Zn (0.020 to 5.0) % Mg (0.010 to 2.0) % Mn (0.010 to 1.5) % Ni (0.010 to 1.5) % Pb (0.010 to 0.50) % Sn (0.010 to 0.20) % Cr (0.010 to 0.30) % Ti (0.010 to 0.25) % Zr (0.010 to 0.20) % Wavelength dispersive X-ray fluorescence spectrometry (WD-XRF) method	BOSMAL/I-7-90/02

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Zinc and its alloys products	Content of: Al, Cu, Fe, Mg, Pb, Sn, Range: Al (0.10 to 10.0) % Cu (0.050 to 4.0) % Fe (0.010 to 1.0) % Mg (0.010 to 1.0) % Pb (0.001 to 0.1) % Sn (0.001 to 0.1) % Inductively coupled plasma optical emission spectrometry (ICP-OES) method	BOSMAL/I-7-43/06
Automobile catalytic converter systems	Content of: Rh, Pd, Pt Range: Rh (0,001 – 0,10) % Pd (0,01 – 0,50) % Pt (0,01 – 0,50) % Wavelength dispersive X-ray fluorescence spectrometry (WD-XRF) method	BOSMAL/I-7-90/02
	Content Rh, Pd, Pt Range: Rh (0,001 – 1,0) % Pd (0,001 – 1,0) % Pt (0,001 – 1,0) % Inductively coupled plasma optical emission spectrometry (ICP-OES) method	BOSMAL/I-7-43/06
Car parts, parts / units of machines and devices, electric and electronic products, construction products, plastic and rubber products	Determination of cleanliness Range: (0.0003 – 10) g Gravimetric method	DIN 8964-1:1996-03 BOSMAL/I-7-48/04 VDA 19.1:2015 (w/o 8.3 i 8.4) ISO 16232:2018 (w/o 7.4.5, 7.4.6, 7.4.7, 7.5) ISO 16232-3:2007 ISO 16232-4:2007 ISO 16232-6:2007 ISO 16232-10:2007
	Determination of cleanliness Range: Length (5 – 2500) µm Width (5 – 2500) µm Optical microscopy method	DIN 8964-1:1996-03 BOSMAL/I-7-48/04 VDA 19.1:2015 (w/o 8.3 i 8.4) ISO 16232:2018 (w/o 7.4.5, 7.4.6, 7.4.7, 7.5) ISO 16232-3:2007 ISO 16232-4:2007 ISO 16232-7:2007 ISO 16232-10:2007
Lubricating materials Engine oils, gear oils, industrial lubricating oils, used oils	Oil identification Infrared spectrometric method (IR)	BOSMAL/I-7-41/06

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Lubricating materials Engine oils, gear oils, industrial lubricating oils, used oils Fuels Diesel fuel	Kinematic viscosity at 40ºC Range: (2 to 200) mm^2/s Capillary method	PN-EN ISO 3104:2021-03 Procedure B
Lubricating materials Engine oils, gear oils, industrial lubricating oils, used oils	Kinematic viscosity at 100ºC Range: (2 to 25) mm^2/s Capillary method	PN-EN ISO 3104:2021-03 Procedure B
	Acid number Range: (0.1 to 5.0) mg KOH/g Potentiometric titration	PN-C-04049:1988 ASTM D 664-17
	Alkali number Range: (1.0 to 15.0) mg KOH/g Potentiometric titration	PN-C-04049:1988 ASTM D 4739-17
	Fuel content Range: (0.5 to 12) % (m/m) Chromatographic method GC-FID	BOSMAL/I-7-86/01 ASTM D3524-14 (2020)
Fuels: Unleaded gasoline, diesel fuel	Benzene content Range: (0.1 to 20) % (V/V) Infrared spectrometric method (IR)	PN-EN 238:2000 PN-EN 238:2000/A1:2008
	Fractional composition Range: (30 - 360) ºC Distillation at atmospheric pressure method	PN-EN ISO 3405:2019-05
	Gum content (unwashed and washed) Range: (0.5 to 30) mg/100 ml Gravimetric method	PN-EN ISO 6246:2017-05/A1:2020-03
	Corrosiveness to copper Visual method	PN-EN ISO 2160:2004
	Density Range: (0.700 to 0.950) g/cm^3 Oscillating U-tube method	PN-EN ISO 12185:2002
	Flash point Range: < 200ºC Pensky-Martens closed cup method	PN-EN ISO 2719:2016-08 met. A
Antifreeze fluid for cooling systems	Ash residue Gravimetric method	PN-C-40008-02:1992
	Boiling point Range: <300ºC Distillation method	PN-C-40008-03:1992
	pH value Range: 3 to 12 Potentiometric method	PN-C-40008-04:1992
	Alkali reserve Titration method	PN-C-40008-05:1993

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Assemblies Testing Department (BS) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Machinery parts, assemblies and components	Forces: rip, pull out, push in, open and close, switch on and off, operating, (10 N to 100 kN)	BOSMAL/I-7-25/06
	Resistance to changeable mechanical load Range: - force ± 100 kN - linear displacement (0 to 250) mm - force moment (± 6000 Nm) - angle (0 to 90°)	BOSMAL/I-7-74/01
Machinery parts, assemblies and components and another construction components	Dependences between load: force, force moment and deformation such as: displacement, elongation, deflection, angle of rotation Range: - force ± 100 kN - force moment ± 5 650 Nm - linear displacement (0 to 250) mm - angle of rotation (0 to 90°) Method: direct or indirect measurement	BOSMAL/I-7-100/01
Mechanical coupling components of combinations of vehicles	Resistance to dynamic load Static strength Testing on the test rig	UN ECE Regulation No. 55 Series 02, Annex 6
Towing devices	Resistance to static load. Testing on the test rig	Commission Regulation (EU) No. 1005/2010, Annex 2
Shock absorbers	Damping forces by direct method during simulated operation Range: up 25 kN	BOSMAL/I-7-51/03
Master cylinders of hydraulic braking systems of automotive vehicles and trailers	Hydraulic tightness by quantitative, qualitative, and quantitative-qualitative methods Range: up to 110 MPa	BOSMAL/I-7-18/05
	Simulated operation	BOSMAL/I-7-26/03
	Resistance to multiple repeatable pressure cycles by simulated operation method	BOSMAL/I-7-23/06
Automotive vehicles and trailers brake pipes junctions	Hydraulic tightness by quantitative, qualitative, and quantitative-qualitative methods Range: up to 110 MPa	BOSMAL/I-7-18/05
Automotive vehicles and trailers braking cylinders	Hydraulic tightness by quantitative, qualitative, and quantitative-qualitative methods Range: up to 110 MPa	BOSMAL/I-7-18/05
	Resistance to multiple repeatable pressure cycles by simulated operation method	BOSMAL/I-7-23/06

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Automotive vehicles braking callipers	Hydraulic tightness by quantitative, qualitative, and quantitative-qualitative methods Range: up to 110 MPa	BOSMAL/I-7-18/05
	Resistance to multiple repeatable pressure cycles by simulated operation method	BOSMAL/I-7-23/06
Hydraulic braking systems metal pipes of automotive vehicles	Hydraulic tightness by quantitative, qualitative and quantitative-qualitative methods Range: up to 110 MPa	BOSMAL/I-7-18/05
Pipes with upended ends, tapped holes, nipples and flexible pipes' ends	Minimal burst pressure by direct method Range: up to 110 MPa	BOSMAL/I-7-19/04
Other products subjected to hydraulic pressure	Hydraulic tightness by qualitative or quantitative method Range: up to 110 MPa Direct method	BOSMAL/I-7-18/05
	Minimum burst pressure by direct measurement Range: up to 110 MPa Direct method	BOSMAL/I-7-19/04
	Resistance to multiple repeatable pressure cycles by simulated operation method Range: (0 to 250) bar Direct method	BOSMAL/I-7-23/06
Car gearboxes	Gears and bearings durability by simulated operation method	BOSMAL/I-7-17/04
Brake discs, brake drums and brake linings of disc and drum brakes in M1, M2, N1, N2, O1 and O2-category vehicles equipped with hydraulic or mechanical braking system	Friction properties Wearing Durability Load resistance Temperature resistance Dynamic friction Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	UNECE Regulation No. 90 Series 02 Annex 3, 4, 9, 11, 5, 12 BOSMAL/I-7-91/01 BOSMAL/I-7-93/02 BOSMAL/I-7-94/02 UNECE Regulation No. 13 Series 11 Annex 4, 11, 15, 19 BOSMAL/I-7-96/02 BOSMAL/I-7-97/02 UNECE Regulation No. 13H Series 01 Annex 3, Annex 7 BOSMAL/I-7-98/01 BOSMAL/I-7-99/01 TD-Prüfrichtlinie Stand 30.09.2003, Anhang 1 – pkt 3-4, Anhang 2 – pkt 3-4 (TD Test Guideline, status: 30.09.2003, Annex 1 – p.3-4, Annex 2 – p.3-4)
Brake discs, brake drums and brake linings of disc and drum brakes in L1, L2, L3, L4 and L5-category vehicles	Friction properties Wearing Durability Load resistance Temperature resistance Dynamic friction Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	UNECE Regulation No. 78 Series 05 UNECE Regulation No. 90 Series 02 Annex 7, Annex 14 TD-PrÜfrichtlinie Stand 30.09.2003, Anhang 3 – pkt 4 (TD Test Guideline, status: 30.09.2003, Annex 3 – p.4)

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Brake discs, brake drums and brake linings of disc and drum brakes including brake callipers in M1, M2, N1, N2, O1, O2-category vehicles, as well as L1,L2, L3, L4 and L5-category vehicles equipped with hydraulic or mechanical braking system	Friction properties Friction coefficient Performance indicators Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	ISO 11157:2005 ISO 15484:2008 (within ISO/PAS 22574:2007; ISO 26867:2009; SAE J2707:2021-06; SAE 2522:2014-09; JASO C-406:2000; SAE J2521:2013-04) ISO 26867:2009 JASO C406:2000 SAE J2784:2021-01 SAE J2522:2014-09 JASO C436:1999 JASO C442:1977 JASO C443:2009 ISO/PAS 22574:2007 ISO 7629:1987 SAE J2789:2018-09
	Friction properties Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	BOSMAL/I-7-103/01
	Wearing Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	SAE J2707:2021-06 JASO C456:1984 JASO C427:2009 SAE J2986:2019-01 ISO/PAS 22574:2007 ISO 7629:1987 SAE J2789:2018-09
	Wearing caused by temperature Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	SAE J2707:2021-06 ISO/PAS 22574:2007 ISO 7629:1987 SAE J2789:2018-09
	Durability Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	JASO C419:2006 ISO/PAS 22574:2007 ISO 7629:1987 SAE J2789:2018-09
	Temperature resistance Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	SAE J2928:2018-05 ISO/PAS 22574:2007 ISO 7629:1987 SAE J2789:2018-09
	Noise emitted by brake	SAE J2521:2013-04 SAE J3002:2021-01
	Friction material temperature Range: Braking torque: 0-5500 Nm Rotational speed: 0-2490 rpm Moment of inertia: 5-250 kgm^2 Test method on an inertia dynamometer	ISO/PAS 12158:2002

Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Brake callipers in M1, M2, N1, and N2-category vehicles, as well as L1, L2, L3, L4 and L5-category vehicles equipped with hydraulic or mechanical braking system	Resistance to pressure, temperature and braking moment	JASO C459:2010 (except JASO C421; JASO 441; JASO C448; JIS D1601; JIS K2233; JIS Z2371; ISO 4930; SAE J1603)
Mechanical coupling components of combinations of agricultural vehicles of categories T, R and S	Static and dynamic strength	UNECE Regulation No. 147 Series 00, Annex 6
Devices of vehicles of categories M2, M3, N2, N3 used to their protection against unauthorized use	Wear of safety devices acting on the steering system. Static torque strength	UNECE Regulation No. 18 Series 03, Annex 3
Devices of vehicles of categories M1, N1 used to their protection against unauthorized use	The wear resistance of the safety devices acting on the steering system. Tensile force and torque strength of the joint between the cylinder core and the cylinder casing	UNECE Regulation No. 116 Series 00, Annex 4, Annex 10
Locks and components of the door fastening of vehicles of categories M1 and N1	Resistance to load on hinged and sliding doors	UNECE Regulation No. 11 Series 04, p. 7
Seat belt anchorages for vehicles of categories M and N	Static strength of the belt anchorage	UNECE Regulation No. 14 Series 09, p. 6 and 7
ISOFIX anchorages systems, ISOFIX top tether anchorages and seating positions in vehicles of category M1	Static strength	UNECE Regulation No. 145 Series 00, p. 6
Front underrun protection devices (FUPD) of vehicles of categories N2 and N3	Loading of test points with a force proportional to the maximum weight of the vehicle. Measurement of the maximum horizontal and vertical displacement of test points	UNECE Regulation No. 93 Series 00, Annex 5

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Engine Research Department (BH) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Combustion engines (max. power up to 500 kW)	Performance measurement on the engine test bench	UN ECE Regulation No. 85 Series 00 Regulation (EU) 582/2011, with amendments up to Regulation (EU) 2019/1939
	Smoke measurement Range: (0 to 60)% Opacity method	UN ECE Regulation No. 24 Series 03 Directive 72/306/EEC with amendments and corrections up to Directive 2005/21/EC
	Operating parameters: - torque (0 to 3000) Nm; tensometric method - engine power (0 to 500) kW; calculated - rotational speed (0 to 10 000) rpm; impulse method - fuel consumption (0 to 150) kg/h; gravimetric method - air consumption (0 to 2 400) kg/h; thermoanemometric method Concentration: CO, CO_2, N_2O, NO_2, NO_x, THC, CH_4, NMHC, NH_3 - CO, range: (0 to 10)%; NDIR method - CO_2, range: (0 to 20)%; NDIR method - N_2O, range: (0 to 1000) ppm CLD method - NO, range: (0 to 1000) ppm CLD method - NO_x, range: (0 to 1000) ppm CLD method - THC, range: (0 to 1000) ppm FID method - CH_4, range: (0 to 1000) ppm FID method - NMHC, range: (0 to 1000) ppm FID method - NH_3, range: (0 to 1000) ppm LDD method - PM - Particulate mass gravimetric method - PN - particulate number laser method	UN ECE Regulation No. 49 Series 06 Regulation (EC) 595/2009 with amendments up to Regulation (EU) 2019/1242 Regulation (EU) 582/2011 with amendments up to Regulation (EU) 2019/1939 Regulation (EU) 2017/2400 with amendments up to Regulation (EU) 2019/318 Regulation (EU) 2016/1628 with amendments up to Regulation (EU) 2017/654 US EPA Regulations, Code of Federal Regulation (CFR) Title 40 – Protection of Environment, Part 1039, 1042, 1065, 1068. UN IMO Standards Tier I, II, III; Annex VI 2008, Edition 2017 Directive 94/25/EC, as amended by Directive 2003/44/EC, Regulation (EU) 1025/2012 and Directive 2013/53/EU Swiss Federal Ordinance on Air Pollution Control (OAPC) Appendix 4, Section 31, paragraph 1 and 2; Section 32, paragraph 2 SN 277206:2014-06 UN ECE Regulation No. 96 Series 05 UN ECE Regulation No. 120 Series 02 UN ECE Regulation No. 132 Series 01 UN ECE Regulation No. 143 Series 00
	Durability test, evaluation of the performance of the pollution control device, which is a spare part, in relation to emissions	Regulation (EU) 2016/1718
	Various tests on the engine test bench	BOSMAL/I-7-46/03
Electric drivetrains (max. power up to 500 kW)	Net power and the maximum power after 30 minutes on the engine test bench	UN ECE Regulation No. 85 Series 00

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Replacement silencing systems of M1 and N1 motor vehicles	Silencing system back pressure measurement	UN ECE Regulation No. 59 Series 03
Vehicles of categories M and N with SI and CI engines, including hybrid vehicles	Emission of gaseous and particulate matter exhaust pollutants – ambient temperatures from 14°C to 30°C (Type I Test) Concentration: CO, CO_2, NO_2, NO_x, THC, CH_4, PM, PN: Range: - CO, range: (0 to 12)% ; - CO_2, range: (0 to 20)% NDIR method - NO_2, NO_x, range: (0 to 1)% CLD method - THC, range: (0 to 5)% FID method - CH_4, range: (0 to 0.05)% Chromatographic method GC-FID - CH_4, range: (0 to 2.5)% FID method - O_2, range: (0 to 22)%, PMD method - PM – gravimetric method; - PN – laser method. Emission: CO, CO_2, NO_2, NO_x, THC, CH_4, NMHC, PM, PN (calculated)	UN ECE Regulation No. 83 Series 07 Regulation (EC) 715/2007 as amended up to Regulation (EU) 459/2012 Regulation (EC) 692/2008 as amended up to Regulation (EU) 2018/1832 Directive 70/220/EEC, as amended up to Directive 2003/76/EC UN Global Technical Regulation (GTR) No. 15 Regulation (EU) 2017/1151 as amended up to Regulation (EU) 2018/1832
	Emission of gaseous pollutants and particle number in real driving conditions Measurement of concentration with PEMS mobile analyzers: - CO, range: (0 to 10)% NDIR method - CO_2, range: (0 to 20)% NDIR method - THC, range: (0 to 10000) ppmC_3 FID method - NO, range: (0 to 5000) ppm CLD, NDUV method - NO_2, range: (0 to 2500) ppm NDUV method - NO_x, range: (0 to 3000) ppm CLD method - PN - laser method, electrostatic method Emission: CO, CO_2, THC, NO, NO_2, NO_x, PN	Regulation (EC) 692/2008 as amended up to Reg. (EU) 2018/1832 Regulation (EU) 2017/1151 as amended up to Reg. (EU) 2018/1832

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Vehicles of categories M and N with SI and CI engines, including hybrid vehicles	Carbon monoxide emission at idling (Type II Test) Emission measurement: - CO, range: (0 to 10)% NDIR method - CO_2, range: (0 to 20)% NDIR method - THC, range: (0 to 2)% NDIR method - O_2, range: (0 to 25)% Electrochemical method	UN ECE Regulation No. 83 Series 07 Regulation (EC) 715/2007 as amended up to Reg. (EU) 459/2012 Regulation (EC) 692/2008 as amended up to Reg. (EU) 2018/1832 Directive 70/220/EEC as amended up to Directive 2003/76/EC Regulation (EU) 2017/1151 as amended up to Reg. (EU) 2018/1832
Vehicles of categories M and N with SI and CI engines, including hybrid vehicles	Emission of crankcase gases by crankcase underpressure method (Type III Test) Range: 1 m H_2O Manometric method	UN ECE Regulation No. 83 Series 07 Regulation (EC) 715/2007 as amended up to Reg. (EU) 459/2012 Regulation (EC) 692/2008 as amended up to Reg. (EU) 2018/1832 Directive 70/220/EEC, as amended up to Directive 2003/76/EC Regulation (UE) 2017/1151 as amended up to Reg. (EU) 2018/1832
	Durability of anti-pollution (gaseous and solids) devices by using driving tests emission measurement method, before and after vehicle ageing test (Type V Test)	
	Emissions of CO and HC gaseous pollutants at ambient temp. -7°C (Type VI Test) Measurement of concentrations: - CO, range: (0 to 12)% NDIR method - THC, range: (0 to 5)% FID method Emission calculated	
	On-board diagnostic (OBD) operation test	
Heavy-duty vehicles of categories M and N with SI and CI engines, including hybrid vehicles	Emission of gaseous pollutants and particle number in real driving conditions Measurement of concentration with PEMS mobile analyzers: - CO, range (0 to 10)% NDIR method - CO_2, range (0 to 20)% NDIR method - THC, range (0 to 10000) ppmC_3 FID method - NO, range (0 to 5000) ppm CLD, NDUV method - NO_2, range (0 to 2500) ppm NDUV method - NO_x, range (0 to 3000) ppm CLD method - PN - laser method, electrostatic method Emission: CO, CO_2, THC, NO, NO_2, NO_x, PN	Regulation (EC) 595/2009 as amended up to Regulation (EU) 2019/1242 Regulation (EU) 582/2011 as amended up to Regulation (EU) 2019/1939 Regulation (EU) 2017/2400 as amended up to Regulation (EU) 2019/318

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Non-road mobile machinery with SI and CI engines	Emission of gaseous pollutants in real working conditions Measurement of concentration with PEMS mobile analyzers: - CO, range (0 to 10)% NDIR method - CO_2, range (0 to 20)% NDIR method - THC, range (0 to 10000) ppmC_3 FID method - NO, range (0 to 5000) ppm CLD, NDUV method - NO_2, range (0 to 2500) ppm NDUV method - NO_x, range (0 to 3000) ppm CLD method Emission: CO, CO_2, THC, NO, NO_2, NO_x	Regulation (EU) 2016/1628 as amended up to Regulation (EU) 2017/654, Regulation (EU) 2017/655, Regulation (EU) 2020/1040 and Regulation (EU) 2018/987 Regulation (EU) 2018/985 as amended up to Regulation (EU) 2020/1564
Vehicles of categories M and N with SI and CI engines, including hybrid and electric vehicles	Fuel consumption by the carbon balance method	UN ECE Regulation No. 101 Series 01 Regulation (EC) 715/2007 as amended up to Reg. (EU) 459/2012 Regulation (EC) 692/2008 as amended up to Reg. (EU) 2018/1832 Directive 80/1268/EEC as amended up to Directive 2004/3/EC UN Global Technical Regulation (GTR) No. 15 Regulation (EU) 2017/1151 as amended up to Reg. (EU) 2018/1832
Vehicles of categories M and N with SI and CI engines, including hybrid and electric vehicles	Electrical energy consumption by energy balance method Driving range on electrical battery power Current: range (0 to 500) A Voltage: range (0 to 1500) V	UN ECE Regulation No. 101 Series 01 Regulation (EU) 2017/1151 as amended up to Regulation (EU) 2018/1832
Vehicles with SI and CI engines	Emission of gaseous pollutants at idling and at idling-up speed by direct measurement of row exhaust gases Measurement of concentrations: - CO, range: (0 to 10)% NDIR method - CO_2, range: (0 to 20)% NDIR method - THC, range: (0 to 2)% NDIR method - O_2, range: (0 to 25)% Electrochemical method	MI Decree from 31.12.2002 (D.U. No. 32, p. 262 from 2003) § 9.1 p. 2 and 3 Attachment 2, as amended up to MT Decree from 09.01.2013 p.30 Directive 2009/40/EC, as amended up to Directive 2010/48/EU UN ECE Regulation No. 24 Series 03 Regulation (EC) 715/2007 as amended, up to Regulation (EU) 459/2012 Regulation (EC) 692/2008 as amended up to Regulation (EU) 2018/1832 Regulation (EU) 2017/1151 as amended up to Regulation (EU) 2018/1832
	Smoke opacity Range: (0 to 60)%	

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Catalysts for spare parts for M and N-category vehicles with SI and CI engines	Catalyst system efficiency by comparative measurement of emission of gaseous and particulate pollutants	UN ECE Regulation No. 103 Series 00 Regulation (EC) 715/2007 as amended up to Regulation (EU) 459/2012 Regulation (EC) 692/2008 as amended up to Regulation (EU) 2018/1832 Regulation (EU) 2017/1151 as amended up to Regulation (EU) 2018/1832
M and N-category vehicles equipped with additional LPG or CNG fueling retrofit	Gaseous exhaust emission Concentration: CO, CO_2, NO_2, NO_x, THC, CH_4. Range: - CO: (0 to 12)% ; - CO_2: (0 to 20)% NDIR method; - NO_2, NO_x: (0 to 1)% CLD method; - THC: (0 to 5)% FID method; - CH_4: (0 to 0.05)% Chromatographic method GC-FID - CH_4: (0 to 2.5)% FID method; - O_2: (0 to 22)%, PMD method Emission: CO, CO_2, NO_2, NO_x, THC, CH_4, NMHC (calculated)	UN ECE Regulation No. 115 Series 00
	Fuel consumption by the carbon balance method	
	Maximum power on vehicle wheels Range: (0 to 258) kW Tensometric method	
	On-board diagnostic (OBD) operation test	

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
M and N-category vehicles with SI and CI engines	Emission of gaseous and particulate exhaust pollutants - JC08 tests and WLTC Concentration: CO, CO_2, NO_2, NO_x, THC, CH_4, PM,PN: Range: - CO: (0 to 12)% ; - CO_2: (0 to 20)% NDIR method; - NO_2, NO_x: (0 to 1)% CLD method; - THC: (0 to 5) % FID method; - CH_4: (0 to 0.05)% chromatographic method GC-FID; - CH_4: (0 to 2.5)% FID method; - O_2: (0 to 22)%, PMD method; - PM – gravimetric method; - PN – laser method. Emission: CO, CO_2, NO_2, NO_x, THC, CH_4, NMHC, PM, PN (calculated)	TRIAS 31-J042(2)-02 TRIAS 31-J042(3)-02 Attachment 42 -Technical Standard TRIAS 31-J042 GTR015-01 .
	Emission of CO, HC, and CO_2 at idling	
	Underpressure in the crankcase by direct measurement	
	Fuel consumption by the carbon balance method JC08 tests and WLTC	TRIAS 99-006-01 TRIAS 08-J042GTR015-01
Two-wheel or three-wheel and four-wheel motor vehicles, including hybrid and electric vehicles	Emission of gaseous and particulate exhaust pollutants (Type I Test) Concentration: CO, CO_2, NO_2, NO_x, THC, CH_4, PM, PN: Range: - CO: (0 to 12)%; - CO_2: (0 to 20)% NDIR method -NO_2, NO_x: (0 to 1)% CLD method - THC: (0 to 5)% FID method - CH_4: (0 to 0.05)% Chromatographic method GC-FID - CH_4: (0 to 2.5)% FID method - O_2: (0 to 22)%, PMD method - PM - gravimetric method - PN - laser method Emission: CO, CO_2, NO_2, NO_x, THC, CH_4, NMHC, PM (calculated)	Regulation (EU) 168/2013 Regulation (EU) 134/2014 as amended up to Regulation (EU) 2018/295 UN Global Technical Regulations (GTR) No. 2

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Two-wheel or three-wheel and four-wheel motor vehicles, including hybrid and electric vehicles	Test of carbon monoxide at idling (Type II Test) Emission measurements: - CO, range: (0 to 10)% NDIR method - CO_2, range: (0 to 20)% NDIR method - THC, range: (0 to 2)% NDIR method - O_2, range: (0 to 25)% Electrochemical method	Regulation (EU) 168/2013 Regulation (EU) 134/2014 as amended up to Regulation (EU) 2018/295 UN Global Technical Regulations (GTR) No. 2
	Emission of crankcase gases by crankcase underpressure measurement (Type III Test) Range: 1 m H_2O - manometer method	
	Emission of CO_2, fuel consumption, consumption of electrical power and driving range when battery-powered by carbon balance and energy balance methods Type VII Test	
	Maximum power on wheels Tensometric method Range: (0 to 258) kW	

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Heat Exchangers Testing Department (BW) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested objects / groups of objects	Type of activity/tested characteristics/test methods	Reference documents
Car heat exchangers and other elements of heat exchange systems	Resistance to working medium temperature changes Range: (-40 - 850) °C – air (-40 - 150) °C – oil, glycol and its solutions	BOSMAL/I-7-53/04
	Resistance to working medium changeable pressure Range: (-0.98 - 4) bar – air up to 5 bar – glycol and its solutions up to 40 bar – oil	BOSMAL/I-7-54/04
	Tightness tests of closed components /systems Range: Water tightness tests (15 - 50) ºC – water (0 - 9) bar – air (0 - 40) bar – nitrogen Tightness tests in temperature chamber (-40 - 180) ºC – environment (0 - 9) bar – air Tightness tests – resistance to vacuum (-40 - 180) ºC – environment (-0.99 - 0) bar – air Pressure drop method (-40 - 180) ºC – environment (0 - 9) bar – air	BOSMAL/I-7-104/01
	Thermal performance and flow resistance Range: Water and glycol flow: 100 - 15000 L/h Air flow: 0.1 - 12400 kg/h Oil flow: 3 - 80 L/min Water and glycol temperature: (-10 - 100) ºC Air temperature: (5 - 510) ºC Oil temperature: (-20 - 140) ºC Water and glycol pressure: up to 2.5 bar Air pressure: up to 3 bar Oil pressure: up to 5 bar	BOSMAL/I-7-57/04

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Electrotechnics & Electronics Department (BE) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Components/assemblies of electric and electronic equipment	Voltage (100 x 10^{-6} V to 1000 V)	BOSMAL/I-7-10/05
	Electric current (200 x 10^{-6} A to 300 A)	BOSMAL/I-7-37/05
	Resistance (50 x 10^{-6} Ω to 100 x 10^{12} Ω)	ISO 6722-1:2011 ISO 6722-1:2011/Cor1:2012 PN-EN 60851-5:2008
	Capacitance (1 pF to100 µF)	BOSMAL/I-7-39/04
	Inductance (100 µH to100 H)	BOSMAL/I-7-39/04
Components/assemblies of machinery and other devices Transport packagings with contents	Environmental hazard resistance: Test A: Cold (up to -40±2°C)	PN-EN 60068-2-1:2009
	Test B: Dry heat (up to 300±2°C)	PN-EN 60068-2-2:2009
	Test Cab: Damp heat, steady state (30±2°C; 93±3%) (30±2°C; 85±3%) (40±2°C; 93±3%) (40±2°C; 85±3%)	PN-EN 60068-2-78:2013-11
	Test Db: Damp heat, cyclic (12h+12h cycle)	PN-EN 60068-2-30:2008
	Test Na: Change of temperature (-40±2°C to 150±2°C)	PN-EN 60068-2-14:2009
	Test Nb: Change of temperature (-40±2°C to 130±2°C) with gradient ≤ 10°C/min	PN-EN 60068-2-14:2009
	Test Z/AD: Composite temperature/humidity cyclic test	PN-EN 60068-2-38:2010
	Test Fc: Vibration (sinusoidal) Range: up to 100 g (peak)	PN-EN 60068-2-6:2008
	Test Ea: Shock Range: up to 1500 m/s^2 (peak)	PN-EN 60068-2-27:2009
	Vertical shocks Range: up to 1500 m/s^2 (peak)	PN-EN ISO 4180:2010 p. 10.6
	Test of resistance to random vertical vibrations Range: up to 0.604 g (RMS)	PN-EN ISO 13355:2016-10
	Test Ec: Shocks caused by careless handling of products. Attempted dropping and overturning, and one free fall. Range: mass up to 9.2 kg	PN-EN 60068-2-31:2010 p. 5.1 i 5.2
	Test Fh: Vibrations, broadband random Range: up to 70 g (RMS)	PN-EN 60068-2-64:2008
	Transport vibration tests Range: up to 10,59 m/s^2 (RMS)	PN-EN ISO 4180:2020-04 p. 6.4

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Components/assemblies of machinery and other devices	Water resistance (tests concerning second characteristic digit 1, 2, 3, 4, 4K, 5, 6, 6K, 7, 8, 9, 9K) Test Rb 1.1 by oscillatory pipe method (max. 40 l/min) Test Rb 2, Rb 3 and Rc 1	PN-EN 60529:2003 p. 14.2.1, 14.2.2, 14.2.3; 14.2.4, 14.2.5, 14.2.6, 14.2.7, 14.2.8 PN-EN 60529:2003/A2:2014-07 PN-EN 60068-2-18:2017-08 ISO 20653:2013
	Dust penetration resistance (dust tests concerning first characteristic digit 5, 5K, 6, 6K) in dust chamber with negative pressure and dust circulation being forced	PN-EN 60529:2003 p. 13.4 PN-EN 60529:2003/A2:2014-07 ISO 20653:2013
	Degrees of protection against foreign objects (tests concerning first characteristic digit 1, 2, 3, 4 and additional letters A, B, C, D)	PN-EN 60529:2003 PN-EN 60529:2003/A2:2014-07 ISO 20653:2013
	Degrees of protection against access to hazardous parts (tests concerning first characteristic digit 1, 2, 3, 4 and additional letters A, B, C, D)	PN-EN 60529:2003 PN-EN 60529:2003/A2:2014-07 ISO 20653:2013
	Splash water test	ISO 16750-4:2010

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Luminous devices powered by constant or alternating voltage	Luminous intensity distribution by goniophotometric method with rotating object (0.1 to 5 x 10^6) cd	BOSMAL/I-7-84/03 PN-EN 13032-1+A1:2012 PN-EN 13032-4+A1:2019-09 CIE 70:1987 IES LM 79-08 ANSI/IES LM 79-19 PN-EN 12966:2015-03 PN-EN 12966+A1:2019-02 PN-EN 12966-1+A1:2009 UN ECE Regulation No. 128 Series 00
	Spectral and colorimetric characteristics (spectral distribution, chromaticity coordinates, correlated colour temperature)	CIE 13.3:1995 CIE 15:2004 CIE 15:2018 CIE 63:1984 IES LM 79-08 ANSI/IES LM 79-19 PN-EN 13032-4+A1:2019-09 PN-EN 12966:2015-03 PN-EN 12966+A1:2019-02 PN-EN 12966-1+A1:2009 UN ECE Regulation No. 37 Series 03 UN ECE Regulation No. 99 Series 00 UN ECE Regulation No. 128 Series 00
	Luminance (1 x 10^{-8} to 1 x 10^5) cd/m^2	PN-E-04040-04:1983 PN-EN 13032-1+A1:2012 PN-EN 13032-4+A1:2019-09 SAE J1757-1:2015-05 PN-EN 12966-1:2009 PN-EN 12966:2015-03 PN-EN 12966+A1:2019-02 PN-EN ISO 9241-305:2009 PN-EN 12966-1+A1:2009
	Luminous flux	CIE 84:1989 PN-EN 13032-1+A1:2012 PN-EN 13032-4+A1:2019-09 IES LM 79-08 ANSI/IES LM 79-19 UN ECE Regulation No. 37 Series 03 UN ECE Regulation No. 99 Series 00 UN ECE Regulation No. 128 Series 00
Traffic control equipment Signal heads	Luminance uniformity	PN-EN 12368:2015-07 p. 8.3
Workplaces, passageways	Illuminance (1 x 10^{-3} to 3 x 10^5) lx	PN-E-04040-03:1983 PN-EN 12464-1:2012 PN-EN 12464-2:2014-05

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Components/assemblies of electric/electronic cars equipment	Voltage	PN-S-76020:1997 p. 3.3.2
	Voltage drop	PN-S-76020:1997 p. 3.3.3
	Resistance to high voltage	PN-S-76020:1997 p. 3.3.4
	Resistance to short-circuit	PN-S-76020:1997 p .3.3.5
	Resistance to change in the polarity of the power source	PN-S-76020:1997 p. 3.3.6
	Durability	PN-S-76020:1997 p. 3.3.12
	Insulation resistance	ISO 16750-2:2012 p. 4.12
	Dielectric strength	ISO 16750-2:2012 p. 4.11
	Resistance to dump heat, steady state	PN-EN 60068-2-78:2013-11 PN-S-76020:1997 p. 3.3.9
	Thermal resistance	PN-EN-60068-2-2:2009 PN-EN-60068-2-1:2009
	Resistance to cyclical temperature changes	PN-S-76020:1997 p. 3.3.8
	Vibration resistance	PN-EN-60068-2-6:2008 PN-S-76020:1997 p. 3.3.10
	Dust and water resistance	PN-S-76020:1997 p. 3.3.13 PN-EN-60529:2003 p. 13.4; 14.2.3; 14.2.4 PN-EN 60529:2003/A2:2014-07

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Cars switches	Voltage drop	BOSMAL/I-7-67/02
	Insulation resistance	
	Dielectric strength	
	Durability	
	Interchangeability of parts	
	Thermal resistance	PN-EN-60068-2-2:2009 PN-EN-60068-2-1:2009
	Resistance to cyclical temperature changes	PN-EN-60068-2-14:2009
	Humidity resistance	PN-EN 60068-2-78:2013-11
	Vibration resistance	PN-EN-60068-2-6:2008
	Dust and water resistance	PN-EN-60529:2003 p. 13.4; 14.2.3; 14.2.4 PN-EN 60529:2003/A2:2014-07
Automobile electronic breakers for direction indicator lamps and emergency lights	Start time	PN-ISO 4082-1999 p.5.5
	Frequency and duty cycle	PN-ISO 4082-1999 p.5.6
	Voltage drop	PN-ISO 4082-1999 p.5.8
	Dielectric strength	PN-ISO 4082-1999 p.5.9
	Resistance to overload	PN-ISO 4082-1999 p.5.11
	Vibration resistance	PN-ISO 4082-1999 p.5.12.2
	Impact resistance	PN-ISO 4082-1999 p.5.13
	Resistance to heat and cold	PN-ISO 4082-1999 p.5.14
	Operation in extreme temperatures	PN-ISO 4082-1999 p.5.15
	Durability	PN-ISO 4082-1999 p.5.16
Wire harnesses/cables of low voltage car installation	Insulation resistance Withstand voltage Voltage drop Resistance to cyclical temperature changes Squeeze test Quality of manufacturing Tightness test (bubble test) Resistance to high temperature Cold flexibility of the cable Flexibility of the cable after aging Resistance to static immersion Resistance to rain Insulation shrinkage Cold Impact Active resistance	BOSMAL/I-7-69/03 ISO 6722-1:2011 ISO 6722-1:2011/Cor 1:2012 PN-EN 60068-2-14:2009 IEC 60227-2:1997+A1:2003 p. 2.1 ISO 19642-2:2019
Electrical connectors	Resistance (voltage drop) Water resistance Temperature/humidity cycling Insulation resistance Withstand voltage Connector coding and polarization Current cycles Heat ageing Free fall Dust resistance Rapid change of temperature (thermal shock) Temperature rise	PN-EN ISO 8092-2:2008

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Electrical connectors	Crimp resistance (50 x 10^{-6} Ω to 1 Ω)	PN-EN 60512-2-1:2006 PN-EN 60512-2-2:2006 PN-EN 60352-2:2006 PN-EN 60352-2:2006/A1:2013-10
Connectors for electronic equipment	Contact resistance - millivolt level method	PN-EN 60512-2-1:2006
	Contact resistance - test current method	PN-EN 60512-2-2:2006
	Insulation resistance	PN-EN 60512-3-1:2005
	Voltage stress test	PN-EN 60512-4-1:2006
	Voltage proof of pre-insulated crimp barrels	PN-EN 60512-4-3:2006
	Temperature rise	PN-EN 60512-5-1:2006
	Current-carrying capacity tests with current-temperature derating	PN-EN 60512-5-2:2005
	Current loading, cyclic	PN-EN IEC 60512-9-5:2021-03
	Climatic tests	PN-EN IEC 60512-11-1:2019-10 PN-IEC 68-2-61:1994 PN-IEC 68-2-61:1994/Ap1:1999
Electrical and electronic equipment installed in L, M, N and O-category vehicles, supplied with 12 V and 24 V DC current	Measurements of emitted disturbances	ISO7637-2:2011 UNECE Regulation No. 10 Series 06 Annex 10
	Resistance to transient conduction along supply lines: impulses 1, 2a, 2b, 3a, 3b, 4, 5a, 5b	ISO 7637-2:2011 ISO 16750-2:2012 UNECE Regulation No. 10 Series 06 Annex 10 UNECE Regulation No. 97 Series 01 Annex 9 UNECE Regulation No. 116 Series 00 Annex 9
	Increased voltage	ISO 16750-2:2012 p.4.3
	Superimposed alternating voltage	ISO 16750-2:2012 p.4.4
	Slow decrease and increase in the supply voltage	ISO 16750-2:2012 p.4.5
	Discontinuities in the supply voltage	ISO 16750-2:2012 p.4.6
	Reverse voltage polarity	ISO 16750-2:2012 p.4.7
	Reference signals shift	ISO 16750-2:2012 p.4.8
	Open circuit operation	ISO 16750-2:2012 p.4.9
	Short-circuit resistance	ISO 16750-2:2012 p.4.10
	Electric endurance	ISO 16750-2:2012 p.4.11
Electric drivetrains of vehicles category M, N, L	Protection against access. Insulation resistance Vibration tests Test with rapid changes of temperature and thermal cycle test Free fall Mechanical shocks. Protection against external short circuit Protection against overcharge Protection against over-discharge Protection against overheating Test of withstand voltage IPX5 water resistance tests	UNECE Regulation No. 100 Series 02 Annex: 3, 4B, 8, 8A, 8B, 8F, 8G, 8H, 8I UNECE Regulation No. 136 Series 00 Annex: 3, 4A, 4B, 8A, 8B, 8C, 8D, 8F, 8G, 8H, 8I, 9A, 9B ISO 6469-1:2019 p. 6.3.1, p. 6.2.2, p. 6.2.3, p. 6.6.2, p. 6.6.3, p. 6.6.4, p. 6.5.1

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Rechargeable energy storage systems (REESS) used in road vehicles of M, N, L- categories	Fire resistance	UN ECE Regulation No. 100 Series 02 Annex 8E UN ECE Regulation No. 136 Series 00 Annex 8E ISO 6469-1:2019 p. 6.4.3 PN-EN ISO 18243:2019-06 p. 8.6
Electrical and electronic equipment	Resistance to electrostatic discharges (ESD)	PN-EN 61000-4-2:2011 ISO 10605:2008
Rear-view mirrors for vehicles of categories L, M and N	Coefficient of reflection (total) of mirror surfaces	UNECE Regulation No. 46 Series 04 p.6.1.2.2
Laminated automotive glass for vehicles of categories L, M, N, O and T	Light transmission Optical distortion Secondary-image-separation test	Directive 92/22/EEC Annex II A, as amended, up to Directive 2001/92/EC Annex II B Directive 2009/144/EC Annex III C updated by Directive 2010/62/EU UNECE Regulation No. 43 Series 01 Annex 3, p. 9.1; 9.2; 9.3; 9.4; ISO 3538:1997 p. 5.1; 5.2; 5.3
	Mechanical strength	Directive 92/22/EEC Annex II A, as amended, up to Directive 2001/92/EC Annex II B Directive 2009/144/EC Annex III C updated by Directive 2010/62/EU UNECE Regulation No. 43 Series 01 Annex 3, p. 2.1, 2.2 ISO 3537:2015 p. 6,7
	Resistance to: - high temperature - humidity	Directive 92/22/EEC Annex II A, as amended, up to Directive No. 2001/92/EC Annex II B Directive 2009/144/EC Annex III C updated by Directive 2010/62/EU UNECE Regulation No. 43 Series 01 Annex 3, p. 5; 7

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Toughened automotive glass for vehicles of categories L, M, N, O and T	Light transmission Optical distortion Secondary-image-separation test	Directive 92/22/EEC Annex II A,, as amended, up to Directive 2001/92/EC Annex II B Directive 2009/144/EC Annex III C updated by Directive 2010/62/EU UNECE Regulation No. 43 Series 01 Annex 3, p. 9.1; 9.2; 9.3; 9.4 ISO 3538:1997 p. 5.1; 5.2; 5.3
	Mechanical strength	Directive 92/22/EEC Annex II A, as amended, up to Directive 2001/92/EC Annex II B Directive 2009/144/EC Annex III C updated by Directive 2010/62/EU UNECE Regulation No. 43 Series 01 Annex 3, p. 2.1; 2.2; ISO 3537:2015 p. 6; 7
Toughened automotive glass for L, M, N, O and T-category vehicles	Fragmentation	Directive 92/22/EEC Annex II A, as amended up to Directive 2001/92/EC Annex II B Directive 2009/144/EC Annex III C updated by Directive 2010/62/EU UNECE Regulation No. 43 Series 01 Annex 3, p. 1 ISO 3537:2015 p. 9
Heated rear windows (backlights)	Power of heating circuit	BOSMAL/I-7-85/02
	Circuit continuity	
	Temperature rise	
	Defrosting	
	Heat-shock resistance	
	Durability of heating circuit	
	Abrasion resistance	
Advance-warning triangles	Colour Coefficient of luminous intensity Luminance factor	UNECE Regulation No. 27 Series 04 UNECE Regulation No. 150 Series 00
Retro-reflective devices for L, M, N, O and T-category vehicles	Colour	UNECE Regulation No. 3 Series 03 UNECE Regulation No. 150 Series 00 Directive 76/757/EEC Annex VII, as amended up to Directive 2006/96/EC Annex II
	Coefficient of luminous intensity	UNECE Regulation No. 3 Series 03 UNECE Regulation No. 150 Series 00 Directive 76/757/EEC Annex VII, as amended up to Directive 2006/96/EC Annex II
Vertical traffic signs	Colour	WT-ITS/19/94-PLE ed. 6 (04.06.2004) p. 5.6.4 PN-EN 12899-1:2010 p. 4.1.1.3 PN-EN 12899-1:2010/ Ap1:2019-07
	Coefficient of luminous intensity	WT-ITS/19/94-PLE ed. 6 (04.06.2004) p. 5.6.5 PN-EN 12899-1:2010 p. 4.1.1.4 PN-EN 12899-1:2010/ Ap1:2019-07

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Marking plates for slow-moving M, N, O and T-category vehicles and mobile machinery	Colour	PN-S-73102:1994 p. 4.6.3 UNECE Regulation No. 69 Series 02 Annex 6 UNECE Regulation No. 150 Series 00
	Coefficient of luminous intensity	PN-S-73102:1994 p. 4.6.4 Regulation No. 69 UNECE Series 02 Annex 7 UNECE Regulation No. 150 Series 00
Marking plates for heavy and long vehicles	Colour	UNECE Regulation No. 70 Series 02 UNECE Regulation No. 150 Series 00
	Coefficient of luminous intensity	UNECE Regulation No. 70 Series 02 UNECE Regulation No. 150 Series 00

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Direction indicators lights for vehicles of categories L, M, N, O and T	Colour of light Luminous intensity	UN ECE Regulation No. 6 Series 02 p. 6; 8 UNECE Regulation No. 148 Series 00 Directive76/759/EEC Annex 0 p. 6; 8, as amended up to Directive2006/96/EC Annex II
Front and rear position (side) lights for vehicles of categories L, M, N, O and T	Colour of light Luminous intensity	UN ECE Regulation No. 7 Series 03 p. 6; 8 UNECE Regulation No. 148 Series 00 Directive76/758/EEC Annex 0 p. 6; as amended, up to Directive 2006/96/EC Annex II
Stop lights for vehicles of categories L, M, N, O and T	Colour of light Luminous intensity	UN ECE Regulation No. 7 Series 03 p. 6; 8 UNECE Regulation No. 148 Series 00 Directive76/758/EEC Annex 0 p. 6; 8, as amended, up to Directive 2006/96/EC Annex II
Rear fog lights for vehicles of categories L3, L4, L5, L7, M, N, O and T	Colour of light Luminous intensity	UN ECE Regulation No. 38 Series 01 UNECE Regulation No. 148 Series 00 Directive77/538/EEC Annex 0 p. 3; 6, as amended, up to Directive 2006/96/EC Annex II
Reversing lamps for vehicles of categories M, N, O and T	Colour of light Luminous intensity	UN ECE Regulation No. 23 Series 01 p. 6; 8 UNECE Regulation No. 148 Series 00 Directive 77/539/EEC Annex 0 p. 6; 8, as amended, up to Directive2006/96/EC Annex II
Light-signalling devices for vehicles of category L	Colour of light Luminous intensity Luminance	UN ECE Regulation No. 50 Series 01 UNECE Regulation No. 148 Series 00 BOSMAL/I-7-84/03 CIE 15:2004 CIE 15:2018
Headlamps for vehicles of categories L, M, N and T	Colour of light Luminous intensity Illuminance	UN ECE Regulation No. 1 Series 02 UN ECE Regulation No. 5 Series 03 UN ECE Regulation No. 8 Series 05 UN ECE Regulation No. 19 Series 05 UN ECE Regulation No. 20 Series 03 UN ECE Regulation No. 31 Series 03 UN ECE Regulation No. 56 Series 01 UN ECE Regulation No. 57 Series 02 UN ECE Regulation No. 72 Series 01 UN ECE Regulation No. 82 Series 01 UN ECE Regulation No. 98 Series 02 UN ECE Regulation No. 112 Series 02 UN ECE Regulation No. 113 Series 03 UN ECE Regulation No. 123 Series 02 UNECE Regulation No. 149 Series 00 BOSMAL/I-7-84/03 CIE 15:2004 CIE 15:2018

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Special warning lamps Warning and safety light devices Obstruction lights	Luminous intensity/ Effective luminous intensity Frequency of pulse Colour of light	UN ECE Regulation No. 65 Series 00 PN-EN 12352:2010 ICAO 9157 PART 4 “Aerodrome Design Manual” ed. 4 – 2004 BOSMAL/I-7-84/03 CIE 15:2004 CIE 15:2018
Solid electrical insulating materials Protective clothing	Surface resistance Volume resistance Resistance to the grounding element Resistance between points (range up to 100 TΩ) Dielectric strength (voltage up to 35 kV, current up to 1 A)	BOSMAL/I-7-65/02 PN-EN 61340-2-3:2016-11 PN-EN 62631-1:2011 PN-EN 62631-3-1:2016-10 PN-EN 62631-3-2:2016-04 PN-EN 62631-3-3:2016-08 PN-EN 60243-1:2013-12 PN-EN 1149-1:2008 PN-EN 1149-2:1999 ISO 14309:2019 ASTM D257-14
Safety glazing materials (glass, transparent polymers)for vehicles of categories L, M, N, O and T	Haze by spectrophotometric method	ISO 3537:2015 ASTM D1003-13 BOSMAL/I-7-72/02 UN ECE Regulation No. 43 Series 01 Annex 3 p. 4 ANSI/SAE Z-26.1:1996
Products from plastic, glass, textiles, nonwovens, foams, rubber, coatings (including painting ones)	Colour of materials reflecting and transmitting light	BOSMAL/I-7-66/02 PN-EN ISO 105-A05:2000 PN-EN ISO 105-J01:2002 PN-EN ISO 105-J03:2009 PN-ISO 7724-1:2003 PN-ISO 7724-2:2003 PN-ISO 7724-3:2003 CIE 15:2004 CIE 15:2018 DIN 53236:2018-02 SAE J1545:2014-10 PN-EN ISO/CIE 11664-1:2019-08 PN-EN ISO 11664-2:2011 PN-EN ISO/CIE 11664-3:2019-08 PN-EN ISO/CIE 11664-4:2019-08 PN-EN ISO 11664-5:2016-10 PN-EN ISO 11664-6:2016-09
Coatings on products made of plastics, glass, textiles, nonwovens, foams, rubber	Resistance of coatings to high pressure water jet	PN-EN ISO 16925:2014-03
Delineator posts and retroreflectors	Colour Luminance factor Coefficient of luminous intensity	PN-EN 12899-3:2010
High-visibility warning clothes and accessories	Colour Coefficient of retroreflection	PN-EN ISO 20471:2013-07 PN-EN 1150:2001 PN-EN 13356:2004 PN-EN 17353:2021-01
Reflective materials and devices	Coefficient of luminous intensity Coefficient of retroreflection	CIE 54.2:2001
Devices for illuminating rear registration plates of category M, N, O ,T vehicles	Luminance Angle of incidence of light Colour	UN ECE Regulation No. 4 Series 01 UN ECE Regulation No. 148 Series 00

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Category M, N, T vehicle parking lights	Luminous intensity Colour	UN ECE Regulation No. 77 Series 01 UN ECE Regulation No. 148 Series 00
Category L, M, N, T vehicle daytime running lights	Luminous intensity Colour	UN ECE Regulation No. 87 Series 01 UN ECE Regulation No. 148 Series 00
Category L, M, N, O, T vehicle side-marker lights	Luminous intensity Colour	UN ECE Regulation No. 91 Series 00 UN ECE Regulation No. 148 Series 00
Category M, N, O vehicle retro-reflective marking	Coefficient of luminous intensity Colour of the reflected light	UN ECE Regulation No. 104 Series 01 UN ECE Regulation No. 150 Series 00
Category M, N, T vehicle cornering lights	Luminous intensity Colour	UN ECE Regulation No. 119 Series 02 UN ECE Regulation No. 149 Series 00
Vehicles of categories M and N	Noise emitted by moving and standing vehicle by acoustic pressure level method Range (25 to 140) dB Direct method	UN ECE Regulation No. 51 Series 02 Annex 3 p. 3.1; 3.2 UN ECE Regulation No. 51 Series 03 Annex 3 p. 3.1; 3.2, Annex 7 Regulation (EU) 540/2014 Annex II, p.4.1 and 4.2, Annex 7 PN-ISO 362:2003 PN-ISO 7188:2003
Electric drives	Sound level in acoustic chamber in the broadband range and in the 1/1 and 1/3 octave bands Range (25 to 140) dB Direct method	BOSMAL/I-7-42/04

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Road Testing Department (BD) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Vehicles of category M1	Useful trunk capacity by use the measuring cuboids method	ISO 3832:2002
	Wind screen defrosting and demisting	Regulation (EU) 672/2010 Annex II p. 2
	Weight and its distribution on each axle, sides and wheels by use portable weighing platforms Range: 150 to 6000kg on single wheel	PN-ISO 2416:1997 Directive 95/48/EC App. to Annex II
	Interior heating effectiveness by measuring temperatures at certain locations of the car while driving	BOSMAL/I-7-62/03
Vehicles of categories M1 and N1	Wheel setting geometry: Range of measurement: - wheel convergence: ± 3° - wheel's angle of heel: ± 5° - stub-axle's angle of heel: ± 18° - stub-axle's castor angle: ±18° - wheel's steering angle: ± 20° - front wheels' displacement: ± 2°	BOSMAL/I-7-11/04
	Centre of gravity situation by car's weight method horizontally and with one axle upraised	ISO 10392:2011 w/o p.7
	Maximum speed by non-contact method on a straight track or oval ring Range: up to 190 km/h	BOSMAL/I-7-83/02 UN ECE Regulation No. 68 Series 00 p. 5.5.1; 5.5.3; 5.5.4
	Acceleration intensity by non-contact method on a straight track Range: up to 190 km/h	BOSMAL/I-7-83/02
	Incorrectness of odometer's readings by comparison with values measured by non-contact method	BOSMAL/I-7-59/03
	Incorrectness of speedometer's readings by comparison with values measured by non-contact method	UN ECE Regulation No. 39 Series 01 p. 5.3
	Fuel consumption characteristics by volumetric method in the road test Range: 60 l/h	BOSMAL/I-7-58/02
	Fuel consumption at constant speed by volumetric method in the road test Range: 60 l/h	UN ECE Regulation No. 84 Series 00 Annex 4, p.3.3.1
	Oil consumption under on-road conditions by gravimetric method	BOSMAL/I-7-13/07

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Vehicles of categories M1 and N1	Tire tread abrasibility under on-road conditions by supervised exploitation method	BOSMAL/I-7-92/02
	U-turn diameter by marking drive track with liquid under the moving vehicle	BOSMAL/I-7-60/02
	Durability, reliability and functionality during mileage accumulation over various routes	BOSMAL/I-7-61/03
Vehicles of categories M1 and N1with hydraulic brakes	Braking systems efficiency by road and speed measured by non-contact method	UN ECE Regulation No. 13 Series 11 Annex No. 4 (w/o Annex No. 13) UN ECE Regulation No. 13H Series 01 Annex No. 3 (w/o Annex No. 6) UN ECE Regulation No. 90 Series 02 Annex No. 3 (w/o p. 2.2) and Annex No. 11 (w/o p. 3 and 4) Directive 98/12/EC Annex II
Vehicles of categories M1, N1 and N2	In-use fuel consumption by volumetric method in the road test Range: 60 l/h	BOSMAL/I-7-12/04
Car parts, sub-assemblies and sets	Assemblability in workshop conditions	BOSMAL/I-7-14/03
Vehicles of categories M2 and M3 powered by a combustion SI or CI heat engine (combustion engine)	Fuel consumption in SORT road cycle Volumetric method in the road test Range: 60 l/h	UITP Project SORT Standardized On-Road Test Cycles New Edition UITP 2014 D/2014/0105/1
Vehicles of categories M2, M3 with electric or hybrid drive	Electricity consumption in SORT road cycle, by the method of measuring voltage and intensity of electric current collected and returned to the battery set Current intensity: range up to 1000 A Voltage: range up to 1500 V	BOSMAL/I-7-68/02 UITP Project SORT Standardized On-Road Test Cycles New Edition D/2014/0105/1 UITP Project E-SORT Cycles for electric vehicles D2017/0105/9
Vehicles of categories M1, N1 and T	Engine starting efficiency under different temperature conditions Range of temperature: (-40 to +50) ^{o}C	BOSMAL/I-7-73/01
Vehicles of category T	Maximum design speed	Directive 2009/60/EC corrected by Directive 2010/62/EC
	Checking the speed regulator regarding the maximum design speed	Directive 2009/144/EC corrected by Directive 2010/52/EC and by Directive 2010/62/EC
	Effectiveness of the braking systemsby measuring the braking distance and delay as well as speed by non-contact method	Directive76/432/EEC App. II as amended, up to Directive 97/54/EC
Mechanical coupling components of combinations of vehicles	The installation and the position on the vehicle	UN ECE Regulation No. 55 Series 02, Annex No. 7
Vehicles of category N	Dimensions of vehicle external projections by use of models and special equipment	UNECE Regulation No. 61 Series 00
Vehicles of categories M, N and O	Installation of tyres	Commission Regulation (EU) 458/2011 UN ECE Regulation No. 142 Series 00
Vehicles of categories M, N and O	Steering equipment testings	UN ECE Regulation No. 79 Series 03
Vehicles of categories M, N	Maximum vehicle speed limiters	UN ECE Regulation No. 89 Series 00 Appendix 5, p. 1.1

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Gauge and Standards Room - Metrology (BP) Sarni Stok 93, 43-300 Bielsko-Biała		
Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Metal, plastic (stiff) and glass products	External, internal, mixed and indirect dimensions: - up to 5000 mm on the surface by direct, comparison method (with accuracy up to 1 mm), - up to 3000 mm by direct, coordinate, contact method (with accuracy up to 0.005 mm), - up to 300 mm by direct, contact-free method (with accuracy up to 0.001 mm) - up to 200 mm by direct, differential method (with accuracy up to 0.001 mm)	BOSMAL/I-7-32/05 BOSMAL/I-7-78/01 BOSMAL/I-7-79/01 BOSMAL/I-7-80/03 BOSMAL/I-7-81/02 BOSMAL/I-7-82/01
	Angular dimensions: - arm of an angle up to 3000 mm by direct, contact method (with accuracy up to 1') - arm of an angle up to 300 mm by direct, contact-free method (with accuracy up to 10')	BOSMAL/I-7-32/05 BOSMAL/I-7-79/01 BOSMAL/I-7-80/03 BOSMAL/I-7-81/02 BOSMAL/I-7-82/01
	Surface roughness: - parameters defined in the norm PN-ENISO 4287:1999 by direct, contact method with accuracy up to 0.02 µm - flat surfaces, - cylindrical surfaces along axis of symmetry	PN-EN ISO 4288:2011
	Shape deviations: a) straightness by direct, contact method - up to 3000 mm (with accuracy up to 0.005 mm), b) flatness - max. surface 3000x1200 mm by direct, contact method c) circularity by direct, contact method - up to Ø 1200 mm (with accuracy up to 0.005 mm), d) cylindricity by direct, contact method - up to Ø 1200 mm and L <3000 mm (with accuracy up to 0.005 mm).	BOSMAL/I-7-32/05 BOSMAL/I-7-78/01 BOSMAL/I-7-79/01 BOSMAL/I-7-80/03 BOSMAL/I-7-81/02 BOSMAL/I-7-82/01

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Metal, plastic (stiff) and glass products	Position deviations: a) parallelism - up to 3000 mm by direct, contact method (with accuracy up to 0.005 mm), - up to 300 mm by direct, contact-free method (with accuracy up to 0.002 mm) b) perpendicularity - up to 3000 mm by direct, contact method (with accuracy up to 0.005 mm) - up to 300 mm by direct, contact-free method (with accuracy up to 0.002 mm) c) position - up to 3000 mm by direct, contact method (with accuracy up to 0.005 mm) - up to 300 mm by direct, contact-free method (with accuracy up to 0.002 mm) d) concentricity - up to 1200 mm by direct, contact method(with accuracy up to 0.005 mm) - up to 300 mm by direct, contact-free method (with accuracy up to 0.002 mm) e) coaxiality - up to 1200 mm by direct, contact method(with accuracy up to0.005 mm) - up to 300 mm by direct, contact-free method (with accuracy up to 0.002 mm) f) symmetry - up to 3000 mm by direct, contact method (with accuracy up to 0.005 mm) - up to 300 mm direct, contact-free method (with accuracy up to 0.002 mm) Complexity deviation - radial and axis run-out	BOSMAL/I-7-32/05 BOSMAL/I-7-78/01 BOSMAL/I-7-79/01 BOSMAL/I-7-80/03 BOSMAL/I-7-81/02 BOSMAL/I-7-82/01
	Pitch diameter of external, metric thread M4 to M32 three measuring wires method (with accuracy up to 0.002 mm)	BOSMAL/I-7-36/03
	Internal, metric thread dimensions M4 to M32 - by plug gauge	PN-ISO 1502:1998

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Tested object / product	Type of activity/tested characteristics/test methods	Reference documents
Rubber and plastic products (flexible) with limitations as a result of flexibility of the objects	External, internal, mixed, indirect dimensions: - up to 5000 mm on the surface by direct, comparison method (with accuracy up to 1 mm), - up to 3000 mm by direct, contact method (with accuracy up to 0.2 mm), - up to 300 mm by direct, contact-free method (with accuracy up to 0.1 mm)	BOSMAL/I-7-32/05 BOSMAL/I-7-79/01 BOSMAL/I-7-81/02 BOSMAL/I-7-82/01
	Angular dimensions: - arm of an angle up to 3000 mm by indirect, contact method (with accuracy up to 20'), - arm of an angle up to 300 mm by direct, contact-free method (with accuracy up to 10')	BOSMAL/I-7-32/05 BOSMAL/I-7-79/01 BOSMAL/I-7-81/02 BOSMAL/I-7-82/01

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Type of operation: Performance of vehicle EU type or vehicle type approval tests	
Vehicle category	Reference document
M, N, O	Directive 2007/46/EC of the European Parliament and of the Council of 5th of September, 2007
	Regulation (EU) 2018/858 of the European Parliament and of the Council of 30th of May, 2018
	Act of 20 June 1997 – Law on Road Traffic
	Regulation of the Minister of Transport, Construction and Maritime Economy of 25th of March, 2013 (Journal of Laws, 2015, item 1475, with later amendments)
	Procedure BOSMAL/P-1-20/10
T, R, C	Regulation (EU) 167/2013 of the European Parliament and of the Council of 5th of February, 2013
	Act of 20th of June, 1997 – Law on Road Traffic
	Regulation of the Minister of Transport, Construction and Maritime Economy of 18th of June 2013 (Journal of Laws, 2015, item 343, with later amendments)
	Procedure BOSMAL/P-1-20/10
L	Regulation (EU) 168/2013 of the European Parliament and of the Council of 15th of February, 2013
	Act of 20 June 1997 – Law on Road Traffic
	Regulation of the Minister of Transport, Construction and Maritime Economy of 17th of June 2013 (Journal of Laws, 2014, item 1828, with later amendments)
	Procedure BOSMAL/P-1-20/10
S	Regulation (EU) 167/2013 of the European Parliament and of the Council of 5th of February, 2013
	Procedure BOSMAL/P-1-20/10

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Type of operation: Approval tests of equipment item or parts		
Category of vehicle	Equipment item or part	Reference document
M1, N1	Recyclability	Directive 2005/64/EC
M1, N1	Air conditioning systems	Directive 2006/40/EC
M1, M2, N1, N2	Emissions (Euro 5 and 6) from light vehicles /access to information	Regulation (EC) 715/2007 Regulation (EC) 692/2008
M, N	Emissions (Euro VI) from heavy vehicles / access to information	Regulation (EC) 595/2009 Regulation (EU) 582/2011
M1	Windscreen defrosting and demisting systems	Regulation (EU) 672/2010
M1	Wheel guards	Regulation (EU) 1009/2010
M, N	Towing devices	Regulation (EU) 1005/2010
N, O	Wheel spray suppression system	Regulation (EU) 109/2011
M, N, O	Installation of tyres	Regulation (EU) 458/2011
M, N	Vehicle access and manoeuvrability	Regulation (EU) 130/2012
M, N, O	Masses and dimensions of motor vehicles	Regulation (EU) 1230/2012
L	Environmental and propulsion unit performance requirements	Regulation (EU) 134/2014
-	Engines for non-road mobile machinery Requirements relating to limits of gaseous and particulate pollutant emissions from these engines	Regulation (EU) 2016/1628
N2, N3	CO2 emissions and fuel consumption of heavy-duty vehicles	Regulation (EU) 2017/2400
T, C	Environmental and propulsion unit performance requirements for agricultural and forestry vehicles and their engines	Regulation (EU) 2018/985
-	Automobile headlamps with asymmetric dipped lights or high beam lights and category R2 or HS1 bulbs	UN ECE Regulation No. 1
L, M, N, O, T	Retro-reflecting devices of motor vehicles and their trailers	UN ECE Regulation No. 3
M, N, O, T	Devices for illuminating rear registration plates of motor vehicles and their trailers	UN ECE Regulation No. 4
T	”Sealed beam” (SB) type headlamps with European asymmetric dipped lights or high beam lights	UN ECE Regulation No. 5
L, M, N, O, T	Direction indicators of motor vehicles and their trailers	UN ECE Regulation No. 6
L, M, N, O, T	Front and rear position lamps, stop-lamps and end-outline marker lamps of motor vehicles and their trailers	UN ECE Regulation No. 7
-	Headlamps of automobile vehicles with asymmetric dipped lights or high beam lights and halogen bulbs (H1, H2, H3, HB3, HB4, H7, H8, H9, HIR1, HIR2 or H11)	UN ECE Regulation No. 8

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Type of operation: Approval tests of equipment item or parts		
Category of vehicle	Equipment item or part	Reference document
M, N, O, L	Electromagnetic compatibility	UN ECE Regulation No. 10
M1, N1	Door latches and door retention components	UN ECE Regulation No. 11
M2, M3, N, O	Vehicles and trailers with regard to braking	UN ECE Regulation No. 13
M1, N1	Passenger cars with regard to braking	UN ECE Regulation No. 13H
M, N	Seat belt anchorages, ISOFIX anchorages systems, and ISOFIX top tether anchorage systems	UN ECE Regulation No. 14
M2, M3, N2, N3, L2, L3, L4, L5, L6, L7	Protection of motor vehicles against unauthorized use	UN ECE Regulation No. 18
L3, L4, L5, L7, M, N, T	Front fog lamps of motor vehicles	UN ECE Regulation No. 19
-	Automobile headlamps with asymmetric dipped lights or high beam lights and halogen lamps (H4 lamps)	UN ECE Regulation No. 20
M, N, O, T	Reversing lamps of motor vehicles and their trailers	UN ECE Regulation No. 23
-	Approval of compression ignition engines with regard to the emission of visible pollutants Approval of motor vehicles with regard to the installation of compression ignition engines of an approved type Approval of motor vehicles equipped with compression ignition engines with regard to the emission of visible pollutants by the engine Measurement of power of compression ignition engines	UN ECE Regulation No. 24
M1	Protruding external elements	UN ECE Regulation No. 26
-	Warning triangles	UN ECE Regulation No. 27
M, N, L3, L4, L5	Audible warning devices and audible signals	UN ECE Regulation No. 28
M, N, T	Automobile „sealed beam” type halogen headlamps with European asymmetrical dipped lights or high beam lights or both	UN ECE Regulation No. 31
-	Filament lamps for use in approved headlamps for power-driven vehicles and their trailers	UN ECE Regulation No. 37
L3, L4, L5, L7, M, N, O, T	Rear fog lamps for power-driven vehicles and their trailers	UN ECE Regulation No. 38
M, N, L	Speedometer equipment and its installation	UN ECE Regulation No. 39
M, N, O, L, T	Safety glazing materials and their installation on vehicles	UN ECE Regulation No. 43
M, N, L	Devices for indirect vision and their installation	UN ECE Regulation No. 46
M, N, O	Installation of lighting and light-signalling devices on vehicles	UN ECE Regulation No. 48
M, N	Emission of gaseous and particulate pollutants from compression-ignition engines and from positive-ignition engines used in vehicles	UN ECE Regulation No. 49
L	Front and rear position lamps, stop lamps, direction indicators and rear registration-plate illumination for vehicles of category L	UN ECE Regulation No. 50

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Type of operation: Approval tests of equipment item or parts		
Category of vehicle	Equipment item or part	Reference document
M, N	External noise level while driving and parking	UN ECE Regulation No. 51
L3	Lighting and light-signalling devices	UN ECE Regulation No. 53
M, N, O	Mechanical coupling parts of vehicle units	UN ECE Regulation No. 55

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Type of operation: Approval tests of equipment item or parts		
Category of vehicle	Equipment item or part	Reference document
L1, L2	Headlamps for mopeds and vehicles treated as such	UN ECE Regulation No. 56
L3, L4, L5	Headlamps for motor cycles	UN ECE Regulation No. 57
M, N, O	Rear underrun protection devices (RUPD) and their installation	UN ECE Regulation No. 58
M1, N1	Replacement silencing systems	UN ECE Regulation No. 59
N	Commercial vehicles with regard to their external projections forward of the cab's rear panel	UN ECE Regulation No. 61
-	Warning lamps of motor vehicles and their trailers	UN ECE Regulation No. 65
M, N	Specific components for liquefied petroleum gases (LPG) and their installation on motor vehicles	UN ECE Regulation No. 67 (part II)
M1, N1	Measurement of the maximum speed	UN ECE Regulation No. 68
M, N, O, T	Rear marking plates for slow-moving vehicles (by design) and their trailers	UN ECE Regulation No. 69
M, N3, O	Rear marking plates for heavy and long vehicles	UN ECE Regulation No. 70
L, M, N, T	Motorcycle headlamps with asymmetric dipped lights or high beam lights equipped with halogen bulbs (HS1)	UN ECE Regulation No. 72
N2, N3, O3, O4	Lateral protection device (LPD) and its installation	UN ECE Regulation No. 73
L1	Installation of lighting (moped)	UN ECE Regulation No. 74
M, N, T	Parking lamps of motor vehicles	UN ECE Regulation No. 77
L1, L2, L3, L4, L5	Approval of parking lamps for category L1, L2, L3, L4 and L5 vehicles	UN ECE Regulation No. 78
L, M, N, T	Moped headlamps equipped with halogen lamps (HS2)	UN ECE Regulation No. 82
M, N, O	Steering equipment	UN ECE Regulation No. 79
M1, M2, N1, N2	Approval of vehicles with regard to the emission of pollutants according to engine fuel requirements	UN ECE Regulation No. 83
M1, N1	Measurement of fuel consumption	UN ECE Regulation No. 84
M, N	Approval of internal combustion engines or electric drive trains intended for the propulsion of motor vehicles of categories M and N with regard to the measurement of net power and the maximum 30-minute power of electric drive trains	UN ECE Regulation No. 85
T	Installation of Lighting and Light-Signalling Devices	UN ECE Regulation No. 86
M, N	Daytime running lamps for motor vehicles	UN ECE Regulation No. 87
M, N	Limiting vehicle speed	UN ECE Regulation No. 89
M, N, O, L	Replacement brake lining assemblies and drum brake linings for motor vehicles and their trailers	UN ECE Regulation No. 90

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Type of operation: Approval tests of equipment item or parts		
Category of vehicle	Equipment item or part	Reference document
M, N, O	Side-marker lamps for motor vehicles and their trailers	UN ECE Regulation No. 91
N2, N3	Front underrun protection devices (FUPD), front underrun protection (FUP)	UN ECE Regulation No. 93
	Approval of engines with compressed ignition (CI) to be installed in agricultural and forestry tractors and in non-road mobile machinery with regard to the emissions of pollutants by the engine	UN ECE Regulation No. 96
M1, N1	Vehicle alarm systems	UN ECE Regulation No. 97
M, N	Motor vehicle headlamps equipped with gas-discharge light sources	UN ECE Regulation No. 98
-	Gas discharge light sources for use in approved Gas discharge lamp units of power-driven vehicles	UN ECE Regulation No. 99
M, N	Electrical safety	UN ECE Regulation No. 100
M1, N1	Measurement of the emission of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range	UN ECE Regulation No. 101
N2, N3, O3, O4	Close coupling device (CCD) Requirements for close coupling installation	UN ECE Regulation No. 102
-	Replacement emission control devices for power-driven vehicles	UN ECE Regulation No. 103
M2, M3, N, 02, 03, 04	Retro-reflective markings for vehicles of category M, N and O	UN ECE Regulation No. 104
N, O	Vehicles intended for the carriage of dangerous goods	UN ECE Regulation No. 105
M2, M3	Category M2 or M3 vehicles with regard to their general construction	UN ECE Regulation No. 107
M, N	Specific components for compressed natural gas (CNG) and their installation on motor vehicles	UN ECE Regulation No. 110 (part II)
M, N	Motor vehicle headlamps equipped with bulbs or LED modules and emitting an asymmetrical dipped beam lights or high beam lights	UN ECE Regulation No. 112
-	Motor vehicle headlamps emitting a symmetrical dipped beam lights or high beam lights and equipped with bulbs, gas-discharge light sources or LED modules	UN ECE Regulation No. 113
-	LPG (liquefied petroleum gases) and CNG (compressed natural gas) retrofit systems	UN ECE Regulation No. 115
M1, N1	Protection of motor vehicles against unauthorized use	UN ECE Regulation No. 116
M3	Burning behaviour of materials used in the interior construction of certain categories of motor vehicles	UN ECE Regulation No. 118
-	Cornering lamps of motor vehicles	UN ECE Regulation No. 119
T	Combustion reciprocating engine	UN ECE Regulation No. 120
M, N	Adaptive front-lighting systems (AFS) for motor vehicles	UN ECE Regulation No. 123
-	Light Emitting Diode (LED) light sources for use in approved lamps on power-driven vehicles and their trailers	UN ECE Regulation No. 128

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Type of operation: Approval tests of equipment item or parts		
Category of vehicle	Equipment item or part	Reference document
M2, M3, N, T	Retrofit emission control devices (REC) for heavy duty vehicles, agricultural and forestry tractors and non-road mobile machinery equipped with compression ignition engines	UN ECE Regulation No. 132
M1, N1	Recyclability of motor vehicles	UN ECE Regulation No. 133
L	Power train of electric vehicles	UN ECE Regulation No. 136
M1	Installation of tires	UN ECE Regulation No. 142
M, N	Dual-Fuel Engine Retrofit Systems (HDDF-ERS)	UN ECE Regulation No. 143
M1	An ISOFIX anchorages system, ISOFIX top tether anchorages and i-Size seating positions intended for use with child restraint systems	UN ECE Regulation No. 145
T, R, S	Mechanical coupling components of combinations of agricultural vehicles	UN ECE Regulation No. 147
-	Light-Signalling Devices (LSD) for power-driven vehicles and their trailers	UN ECE Regulation No. 148
M, N, L, T	Road Illumination Devices (RID) and systems for power-driven vehicles	UN ECE Regulation No. 149
-	Retro-Reflective Devices (RRD) for power-driven vehicles	UN ECE Regulation No. 150

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Type of operation: Performance of approval tests of the assembly method of the installation adapting a given type of vehicle to run on gaseous fuel	
Category of vehicle	Reference document
M, N	Regulation of the Minister of Transport, Construction and Maritime Economy of 10th of May, 2013 (Journal of Laws, 2014, item 1813, with later amendments)
	Procedure BOSMAL/P-1-20/10

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Type of operation: Individual vehicle approval	
Category of vehicle	Reference document
T, L, R, C	Regulation of the Minister of Transport, Construction and Maritime Economy of 26th of March, 2013 (Journal of Laws, 2015, item 148, with later amendments)
	Procedure BOSMAL/P-1-20/10

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Type of operation: Performance of tests confirming that appropriate technical conditions or requirements for a specific vehicle have been complied with, for the national individual vehicle approval	
Category of vehicle	Reference document
M, N, O	Regulation (EU) 2018/858 of the European Parliament and of the Council of 30th of May, 2018
	Procedure BOSMAL/P-1-20/10

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Type of operation: Performance of tests confirming that appropriate technical conditions or requirements for a specific vehicle have been complied with, for the EU individual vehicle approval	
Category of vehicle	Reference document
M1, N1 and special vehicles M, N, O	Regulation (EU) 2018/858 of the European Parliament and of the Council of 30th of May, 2018
	Procedure BOSMAL/P-1-20/10

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The accreditation amendments list

The status of amendments: the primary version – A

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