



TÜVNORD

Symposium

Homologation and Technology for agricultural and forestry vehicles

TÜV NORD Mobility | Institute for Vehicle Technology and Mobility | 15th June 2023

TÜVNORD

CR (EU) No 167/2013

**Approval and market surveillance of
agricultural and forestry vehicles**

Gordon Gutknecht | TÜV NORD Mobilität - IFM

CR (EU) No 167/2013

Topics

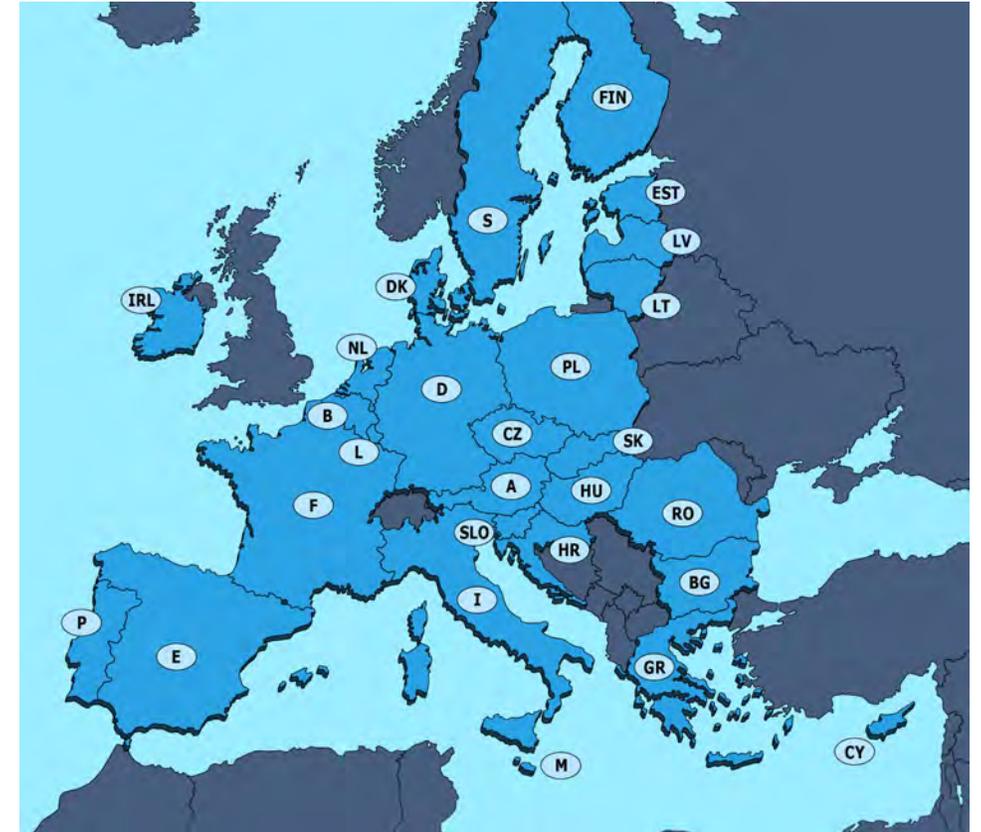
- Aims of the Regulation and type approval
- Structure of the regulation
- Overview scope
- Type, variant and version
- Innovations and informations



Aims of the Regulation and type approval

Aims of the Regulation and type approval

- Uniform approval procedure in all member states of the EU
- A reduction of barriers to trade within the European market
- Harmonising technical demands to systems, components and separate technical units
- Improve the protection of the environment
- Improve traffic safety within the EU



Source: <https://www.hanisauland.de/wissen/spezial/politik/europaeische-union/europaeische-union-kapitel-1.html>

Structure of the Regulation

Structure of the Regulation

Framework Regulation
CR (EU) No 167/2013



Delegated Regulation
CR (EU) No 1322/2014
CR (EU) No 2015/96
CR (EU) No 2015/68
CR (EU) No 2015/208



Implementing Regulation
CR (EU) No 2015/504



Structure of the Regulation

Framework Regulation of the European Parliament and Council

CR (EU) No 167/2013

- Administrative rules and technical demands for the type approval of all new vehicles, systems, components or technical units

Structure of the Regulation

Delegated Regulation of the commission

CR (EU) No 1322/2014 (RVCR)

- Technical requirements and test procedures regarding design, construction and assembly of vehicles

CR (EU) No 2015/68 (RVBR)

- Technical requirements and test procedures regarding functional safety in view of the performance of the brake system

Structure of the Regulation

Delegated Regulation of the commission

CR (EU) No 2015/96 (REPPR)

- Technical requirements and test procedures regarding the environmental compatibility and the power output of the drive train in regard to pollutant emissions and allowed outer noise level

CR (EU) No 2015/208 (RVFSR)

- Technical requirements and test procedures regarding functional safety

Structure of the Regulation

Implementing regulation of the commission

CR (EU) No 2015/504 (RAR)

- Uniform conditions for the performance of administrative requirements

Structure of the Regulation

Example agricultural or forestry trailer: legal acts acc. to CR (EU) No 167/2013

License plate RVFSR CR (EU) 2015/208 an. XIX	Brake system and trailer braking connection RVBR CR (EU) 2015/68	Lights and signalling devices and their light sources RVFSR CR (EU) 2015/208 an. XI	Installation of lights and signalling devices RVFSR CR (EU) 2015/208 an. XII	Outer vehicle surface and accessories RVFSR CR (EU) 2015/208 an. XIV	protection against unauthorized use RVFSR CR (EU) 2015/208 an. XVIII
Protection against other than in article 18(2)(a), (b), (g) and (k) listed mechanical hazards, including protection of tyres, hydraulic hoses and uncontrolled movements of the vehicle RVCR CR (EU) 1322/2014 an. XXIV					vehicle structure integrity RVFSR CR (EU) 2015/208 an. II
					Operation manual RVCR CR (EU) 1322/2014 an. XXII
					Safety of electrical systems RVFSR CR (EU) 2015/208 an. XXIV
Rear underrun protection RVFSR CR (EU) 2015/208 an. XXVI					Mechanical coupling devices RVFSR CR (EU) 2015/208 an. XXXIV
Guards and protective devices RVCR CR (EU) 1322/2014 an. XXV					Total mass loaded RVFSR CR (EU) 2015/208 an. XXII
Dimensions and trailer mass RVFSR CR (EU) 2015/208 an. XXI	Spray suppression systems RVFSR CR (EU) 2015/208 an. XXX	Tyres RVFSR CR (EU) 2015/208 an. XXX	Side protective devices RVFSR CR (EU) 2015/208 an. XXVII	Information, warnings and markings RVCR CR (EU) 1322/2014 an. XXVI, XXIX	Legally required plates and markings RVFSR CR (EU) 2015/208 an. XX

Structure of the Regulation

ANNEX I

LIST OF REQUIREMENTS FOR THE PURPOSES OF VEHICLE EU TYPE-APPROVAL

Nr.	Article	Subject	Regulatory act reference	Motor vehicles	Vehicle categories																	
					T1a	T1b	T2a	T2b	T3a	T3b	T 4.1a	T4.1b (+)	T 4.2a	T 4.2b (+)	T 4.3a	T4.3b	Ca	Cb (+)	Ra	Rb	Sa	Sb
1	17(2)(a)	Vehicle structure integrity	RVFSR		X	X	X	X	X	X	X	X	X	X	X	X	I	I	X	X	X	X
2	17(2)(b)	Maximum design speed, speed governor and speed limitation devices	RVFSR		X	X	X	X	X	X	X	X	X	X	X	X	I	I	NA	NA	NA	NA
3	17(2)(b)	Braking devices and trailer brake coupling	RVBR		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	17(2)(b)	Steering for fast tractors	RVFSR (based on ECE 79 REV [new number])	Y	NA	X	NA	X	NA	X	NA	X	NA	X	NA	X	NA	I	NA	NA	NA	NA
5	17(2)(b)	Steering	RVFSR	Y	X	NA	X	NA	X	NA	X	NA	X	NA	X	NA	I	NA	NA	NA	NA	NA
6	17(2)(b)	Speedometer	►M3 RVFSR ◀		X	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA	NA	NA
7	17(2)(c)	Field of vision and windscreen wipers	RVFSR (based on ECE 71 REV. 1)	Y	X	X	X	X	X	X	X	X	X	X	X	X	I	I	NA	NA	NA	NA

02013R0167 — EN — 18.04.2019 — 005.001 — 69

Overview scope

Overview

Scope

Tractors

- T1, T2, T3, T4, T4.1, T4.2, T4.3, C
- to each class of tractors on wheels, suffix „a“ or „b“ is added, depending on their design speed :
 - „a“ for tractors on wheels with a design speed **not exceeding 40 km/h**
 - „b“ for tractors on wheels with a design speed **exceeding 40 km/h**



Overview

Scope

Tractor

- „Class T1“: Tractors with track width **exceeds 1150 mm**, **exceeds 600 kg** unladen mass and ground clearance **up to 1000 mm**
- „Class T2“: Tractors with track width **up to 1150 mm**, **exceeds 600 kg** unladen mass and **max. ground clearance 600mm**
- „Class T3“: Tractors with unladen mass **up to 600 kg**
- „Class T4“: Comprises **special purpose** wheeled tractors
- „Class T4.1“: High clearance tractors with ground clearance **exceeds 1000 mm**
- „Class T4.2“: Extra-wide tractors
- „Class T4.3“: Low-clearance tractors, for-wheel drive, one or more power take-offs, up to 10t technically permissible mass, ratio of this mass to the max. unladen mass less than 2,5 and having the centre of gravity less than 850 mm
- „Class C“: Tractor propelled by endless tracks

Overview

Scope

Trailers

- R1, R2, R3, R4
- To each class of trailers, suffix „a“ or „b“ is added, depending on their design speed :
 - „a“ for trailers with a design speed **not exceeding 40 km/h**
 - „b“ for trailers with a design speed **exceeding 40 km/h**



Overview

Scope

Trailer

- „Class R1“: Trailer, where the sum of the technical allowed masses per axle is **up to 1 500 kg**
- „Class R2“: Trailer, where the sum of the technical allowed masses per axle **exceeds 1 500 kg but not 3 500 kg**
- „Class R3“: Trailer, where the sum of the technical allowed masses per axle **exceeds 3 500 kg but not 21 000 kg**
- „Class R4“: Trailer, where the sum of the technical allowed masses per axle **exceeds 21 000 kg**

Overview

Scope

Interchangeable towed equipment

- S1, S2
- Each class of interchangeable towed equipment has a suffix „a“ or „b“ added, depending on the max. design speed of the equipment:
 - „a“ for interchangeable towed equipment with a design speed **not exceeding 40 km/h**
 - „b“ for interchangeable towed equipment with a design speed **exceeding 40 km/h**
- „Class S1“: interchangeable towed equipment , where the sum of the technical allowed masses per axle is **up to 3 500 kg**
- „Class S2“: interchangeable towed equipment , where the sum of the technical allowed masses per axle **exceeds 3 500 kg**



Overview

Definitions

Trailer

- „Trailer“: an agricultural or forestry vehicle which is generally designed to be towed by a tractor to transport goods or to process material

Interchangeable towed equipment

- „interchangeable towed equipment “ a vehicle for the agricultural or forestry use designed to be towed by a tractor which alters or enlarges the function of the tractor; it is permanently equipped with a machine or it is designed to process materials; it can be equipped with a loading platform which carries equipment required for the work or can temporarily store the material produced or required for the work; the quotient between technically allowed max. load and the empty weight of the vehicle is less than 3.0.

Type, variant, version

Type, Variant, Versions

Article 3 Definitions

- **‘vehicle type’** means a group of vehicles, including variants and versions of the same category
- **‘variant’** means vehicles of the same type
- **‘version of a variant’** means vehicles which consist of a combination of items shown in the information package referred to in Article 24(10).

[CELEX_02013R0167-20190418_EN_TXT.pdf](#)

Innovations and informations

Innovations and information

Article 1

- The Regulation is not applicable for single vehicle approvals
- In Germany, the StVZO regulates the SVAs!

Article 2

- For the following vehicles, the manufacturer has the choice between applying for an approval according to this regulation, or to fulfil the responsible national requirements:
 - a) Trailer (R) and interchangeable towed equipment (S)
 - b) Tractors on tracks (C)
 - c) Special purpose tractors on wheels (T4.1 und T4.2)

Innovations and informations

Article 35

- Exemptions for new technologies or new concepts are possible

Article 53 Manufacturers' obligations

- Manufacturers shall provide unrestricted and standardised access to vehicle repair and maintenance information to independent operators through websites using a standardised format in a readily accessible and prompt manner, and in a manner which is non-discriminatory compared to the provision given or access granted to authorised dealers and repairers.
- See CR (EU) No 1322/2014 an. V
- Proof with information document (see implementing provision)

Innovations and informations

Vehicle-identification-no.

- VIN has to fulfill the requirements of
 - **ISO 10261:2002** (Earth moving equipment– numbering system for product identification)or of
 - **ISO 3779:2009** (Road vehicles– Vehicle-identification-no. (VIN) – content and structure)
- See implementing regulation

Innovations and informations

Penalties

Article 72

- 1. Member States shall provide for penalties for infringement by economic operators of this Regulation and the delegated or implementing acts adopted pursuant to this Regulation. They shall take all measures necessary to ensure that the penalties are implemented. The penalties provided for shall be effective, proportionate and dissuasive.

Questions?

Gordon Gutknecht

MIFMTAT-H

T.: +49 511 998-61548

M.: ggutknecht@tuev-nord.de

Incomplete
vehicle type-
approval

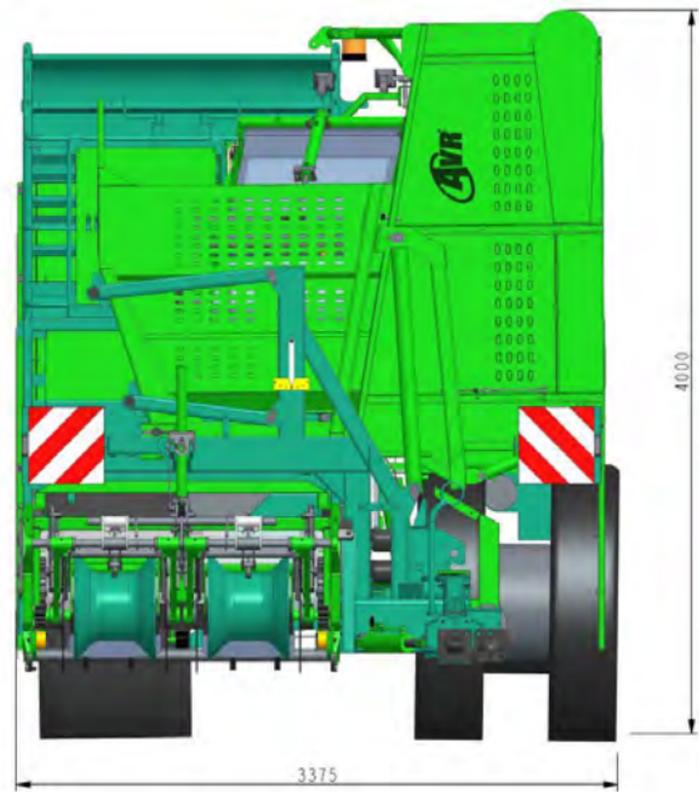


Agenda

- Introduction
- Changes in the production process
- Scope of documentation
- Choice of incomplete test vehicle
- Timeline of an approval process
- Acceptance of incomplete vehicles in Europe
- Final assessment and benefits of incomplete vehicle type approval

Introduction

- Korneel Leyn
- Homologation @ AVR
- Some complete vehicle approvals
- Some incomplete vehicle approvals
 - Dimensions out of scope 2015/208
 - Tyres out of scope 2015/208
 - ...



Changes in the production process

- **Production requirements** for complete- or incomplete vehicle type-approvals are **equal**
- **COP-certification** is still **mandatory**
- Vehicles must be marked with their **approval number**

- The **incomplete vehicle type-approval** is an approval which has the **same demands** as the **complete vehicle type-approval** for all areas where you want to comply or where your vehicle is finished.

Scope of documentation

- The approval comes with the same list off regulatory acts with which the type of vehicle complies, there will just be the ones missing where you don't comply/your vehicle isn't finished



Addendum to the EU type-approval certificate *e24*16/2013*00467*00*

List of regulatory acts with which the type of vehicle complies

To be filled in only in the case of type-approval in accordance with Article 25(6) of Regulation (EU) No 167/2013

Item	Subject	Regulatory act reference	As amended by	Applicable to version
VEHICLE FUNCTIONAL SAFETY REQUIREMENTS				
1	Vehicle structure integrity	Commission Delegated Regulation (EU) No 2015/208 Annex II	CR (EU) 2018/829	<i>ALL</i>
2	Maximum design speed, speed governors and speed limitation devices	Commission Delegated Regulation (EU) No 2015/208 Annex III		
3	Steering for fast tractors	Commission Delegated Regulation (EU) No 2015/208 Annex IV		
4	Steering	Commission Delegated Regulation (EU) No 2015/208 Annex V		
5	Speedometers	Commission Delegated Regulation (EU) No 2015/208 Annex VI		
6	Field of vision and windscreen wipers	Commission Delegated Regulation (EU) No 2015/208 Annex VII		
7	Gisting	Commission Delegated Regulation (EU) No 2015/208 Annex VIII		
8	Rear-view mirrors	Commission Delegated Regulation (EU) No 2015/208 Annex IX		
9	Driver information systems	Commission Delegated Regulation (EU) No 2015/208 Annex X		
10	Lighting, light signalling devices and their light sources	Commission Delegated Regulation (EU) 2015/208 Annex XI	CR (EU) 2018/829	<i>ALL</i>



Addendum to the EU type-approval certificate *e24*16/2013*00467*00*

Item	Subject	Regulatory act reference	As amended by	Applicable to version
VEHICLE FUNCTIONAL SAFETY REQUIREMENTS				
11	Lighting installation	Commission Delegated Regulation (EU) No 2015/208 Annex XII	CR (EU) 2018/829	<i>ALL</i>
12	Vehicle occupant protection, including interior fittings, head restraints, seat belts, vehicle doors	Commission Delegated Regulation (EU) No 2015/208 Annex XIII		
13	Vehicle exterior and accessories	Commission Delegated Regulation (EU) No 2015/208 Annex XIV	CR (EU) 2018/829	<i>ALL</i>
14	Electro-magnetic compatibility	Commission Delegated Regulation (EU) No 2015/208 Annex XV		
15	Audible warning devices	Commission Delegated Regulation (EU) No 2015/208 Annex XVI		
16	Heating systems	Commission Delegated Regulation (EU) No 2015/208 Annex XVII		
17	Devices to prevent unauthorised use	Commission Delegated Regulation (EU) No 2015/208 Annex XVIII	CR (EU) 2018/829	<i>ALL</i>
18	Registration plates	Commission Delegated Regulation (EU) No 2015/208 Annex XIX	CR (EU) 2018/829	<i>ALL</i>
19	Statutory plates and markings	Commission Delegated Regulation (EU) No 2015/208 Annex XX	CR (EU) 2018/829	<i>ALL</i>
20	Dimensions and trailer masses	Commission Delegated Regulation (EU) No 2015/208 Annex XXI		
21	Maximum laden mass	Commission Delegated Regulation (EU) 2015/208 Annex XXII	CR (EU) 2018/829	<i>ALL</i>
22	Ballast masses	Commission Delegated Regulation (EU) 2015/208 Annex XXIII		



Scope of documentation

- The approval comes with the **same list of regulatory acts** with which the type of vehicle **complies**, there will just be the **ones missing** where you don't comply/your vehicle isn't finished
- **Documentation requirements** for parts that are **compliant** are **equal** to complete vehicle type-approval.
- If **compliant areas are altered** when completing the vehicle, these will also need to be **assessed again**.

Choice of incomplete test vehicle

- As usual, **discuss** with your **TUV-contact**
- **Largest** Version
- **Heaviest** Version
- Tyres with **highest SLR**



Timeline of an approval process

- Depends on many factors
 - **Complexity** of the machine/trailer
 - **How Incomplete** is the vehicle
 - Working pressure at the **Approval Authority**
- Most of our own approvals have gone through in around **10 weeks** when the file was fully complete.

Acceptance of incomplete vehicles in Europe

- The incomplete type-approval is accepted **throughout Europe** as a base for **single approvals**.
- Vehicles can go to our dealers to get their final approval in country of sale.



- These type-approvals are, at the moment, not accepted as a base for a Small Series National-approval. At least not in France, Belgium or Holland.



Final assessment and benefits of incomplete vehicle type approval

- Allows us to build vehicles that **don't fully comply** with **167/2013**, while still being able to **certify** all other areas where the machines **do comply**.
- **Single approvals** are **easier**, and **discussions** are **avoided** if the hardest parts are covered in your approval.
- **Not as straight-forward** as complete vehicle-approval



Thank you
for your
attention

Questions?

Korneelleyn@avr.be

Experience and handling of whole vehicle type approval

Symposium
Homologation and Technology for
agricultural and forestry vehicles

Timo Schulte
15.05.2023

Experience and handling of whole vehicle type approval



- This is KRONE
- Process from machine card to COC
- Administration and dispatch of COC
- Vehicle registration with COC and acceptance in EU
- Country specifics dealing with COCs at initial registration
- COC in European trade and resale of used vehicles
- Final assessment and benefits of a type approval



01

This is KRONE



Bernard KRONE Holding SE & Co. KG, Spelle (Germany)



**KRONE Commercial Vehicle SE,
Werlte (Germany)**



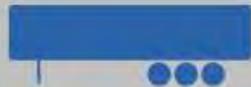
**KRONE Agriculture SE,
Spelle (Germany)**



Strategic Growth

KRONE Group Sales History

2011/12



€ 878 mil.

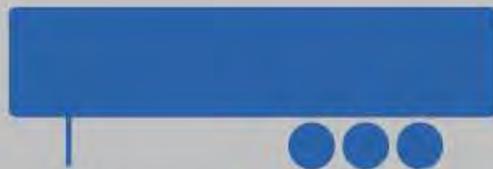


€ 412 mil.

KRONE Group

€ 1.390 mil.

2021/22



€ 1.689 mil.



€ 828 mil.

KRONE Group
with KRONE Holding (€ 8 million)

€ 2.525 mil.



Farm machinery sales percentages by region



KRONE is the **Full Liner** in forage harvesting **240 models**

- 2 BiG M models
- 57 mower models
- 30 tedder models
- 30 rake models
- 34 round baler models and bale wrappers
- 25 big baler models
- 29 forage harvester models and headers
- 28 forage wagon models
- 1 pellet press model
- 4 KRONE Digital models



02

Process from machine card to COC





Kraftfahrt-Bundesamt
DE-24932 Flensburg

EU-GESAMTFAHRZEUG-TYPGENEHMIGUNGSBOGEN
EU WHOLE-VEHICLE TYPE-APPROVAL CERTIFICATE

Mitteilung über:

Die Erteilung der EU-Gesamtfahrzeug-Typgenehmigung für einen Typ eines vollständigen Fahrzeugs

in Bezug auf die Verordnung (EU) Nr. 167/2013, zuletzt geändert durch die Delegierte Verordnung (EU) Nr. 1322/2014 des Europäischen Parlaments und des Rates

Communication concerning

EU whole-vehicle type-approval of a complete vehicle type

with regard to Regulation (EU) No 167/2013, as last amended by Commission Delegated Regulation (EU) No 1322/2014 of the European Parliament and of the Council

EU-Typgenehmigungsnnummer: e1*167/2013*00001*00
EU type-approval number:

Grund für die Erweiterung - Reason for extension:
entfällt - not applicable

ABSCHNITT I - SECTION I

1.1. Fabrikmarke (Firmenname des Herstellers –
Make (trade name of manufacturer):
KRONE

1.2. Typ –
Type :
RPN2

1st EU whole-vehicle type-approval under REGULATION (EU) No 167/2013

- Work on this whole-vehicle type-approval startet mid of 2015.
 - Very close cooperation with TÜV Nord IFM.
- KRONE early identified benefits of EU type-approvals.
- KRONE wanted to deal with the topic early on in order to gain experience.

Process from machine card to COC



Actual status:

- „real“ start with WVTAs in 2018.
- 58 whole-vehicle type-approvals.
 - 129 extensions of WVTA.
- 2 system type-approvals.
- 4 type approval authorities:
 - Germany (KBA),
 - Ireland (NSAI),
 - Czech Republic (Ministerstvo Dopravy),
 - Netherlands (RDW).

The image shows a document from the Kraftfahrt-Bundesamt (German Federal Motor Vehicle Authority) in Flensburg. It is an EU Whole-Vehicle Type-Approval Certificate (EU-GESAMTFahrzeug-Typgenehmigungsbogen). The document is in German and English. It details the approval of a complete vehicle type, specifically a Krone vehicle. The certificate number is e1*167/2013*00398*00. The reason for extension is 'entfällt - not applicable'. The document lists the manufacturer as Krone and the vehicle type as KW20301. It also mentions that there are no variants or versions for this type.

Kraftfahrt-Bundesamt
DE-24932 Flensburg

EU-GESAMTFahrzeug-TYPGENEHMIGUNGSBOGEN
EU WHOLE-VEHICLE TYPE-APPROVAL CERTIFICATE

Mitteilung über:

Die Erteilung der EU-Gesamtfahrzeug-Typgenehmigung für einen Typ eines vollständigen Fahrzeugs

in Bezug auf die Verordnung (EU) Nr. 167/2013, zuletzt geändert durch die Delegierte Verordnung (EU) (Nr.) 2019/519 des Europäischen Parlaments und des Rates

Communication concerning

EU whole-vehicle type-approval of a complete vehicle type

with regard to Regulation (EU) No 167/2013, as last amended by Commission Delegated Regulation (EU) (No) 2019/519 of the European Parliament and of the Council |

EU-Typgenehmigungsnummer: e1*167/2013*00398*00
EU type-approval number:.

Grund für die Erweiterung - Reason for extension:
entfällt - not applicable

ABSCHNITT I - SECTION I

1.1. Fabrikmarke (Firmenname des Herstellers) –
Make (trade name of manufacturer):
KRONE

1.2. Typ –
Type :
KW20301

1.2.1 Variante(n) –
Variant(s):
siehe 1.2.1. des TBB - see 1.2.1. of id

1.2.2 Version(en) –
Version(s):
siehe 1.2.2. des TBB - see 1.2.2. of id

Time before WVTAs with Regulation 167/2013

- National approvals necessary for some countries, e.g. Germany, France or Italy.
 - Individual approvals or type approvals.
 - Lots of effort for homologations of new and changed types.
 - technical differences in the requirements of different EU countries
- Many other countries did not demand any official homologation-documents at that time.
- Germany: Individual approval according Straßenverkehrs-Zulassungs-Ordnung (StVZO), § 21 Betriebserlaubnis für Einzelfahrzeuge
 - Technical Service had to check every single machine.
 - Basis for this individual approval was the manually made data sheet of the respective machine.

Process from machine card to COC



Today: COC-Process is fully automated via SAP

- Database and templates are maintained in SAP.
- COC-printing is triggered automatically on machine dispatch.

Maschinenfabrik Krone Beteiligungs-GmbH Spelle



Stand: 19.11.2018

Abnahmedaten
für die Erstellung eines Gutachtens gem. §4 Abs. 1 FZV
zur Erlangung einer Betriebserlaubnis gem. § 21 StVZO

B	-	2.1	9825	2.2	000 000 -	L	2	19 -	P2/P4	- / -	T	-
J	78	4	11115			18	6680		19	3000		
E	WMKR800C01014006	3	-			20	2930		G	7640		
D1	KRONE			12	-	13	1200		Q			
	COMPRIMA CF 155 (DS)			V.7	-	F.1	\$200		F.2	\$200		
D2				7.1	7000	7.2	7.3		8.3			
				8.1	7000	8.2	8.3		8.3			
				U.1		U.2	U.3		U.3			
D3	COMPRIMA CF 155 XC			O.1		O.2	S.1		S.2			
2	MASCHINENFAB. KRONE			15.1	800/55-20 117 A8							
5	SDAH ARBEITSGERAT			15.2								
	STROH-U. HEUPRESSE			15.3								
V.9				R			11					
P.3				K								
				6			17		16			
10		14.1		P.1								
				11								
22	Bemerkung 2019 * Zul. Höchstgeschwindigkeit 40 km/h * Zu L: Tandemasch. Achsabstand: 1100 mm * Zu S.1: Ww auch gen. Bereifung 620/40R22 5 117 A8, dann zu 19: 290mm* Fz Ident. Nr. an der rechten Fz-seite, oberhalb der Achse * Zugabel im Einzelverfahren sepr. Prüf-Nr.: TPN1_(s. unten). * Anlagen: Bei Fahrten auf öffentlichen Straßen muss die Pick-up angehoben, die Heckklappe geschlossen werden und die elektrische Bedienung ausgeschaltet sein, die Ballenkommer und der Wickeltisch müssen leer sein. * Bei montierten Ballenwender muss dieser bei dem Betrieb auf öffentlichen Straßen in Transportstellung geschwenkt werden und gegen unbeabsichtigtes Herausweichen gesichert sein. * Der Bremskraftpedal muß auf die Stellung: Völlig eingestellt sein. * Gezapfte Auswechslbare Maschine d. Fz. Klasse S gem. RL 2009/37/EG, die nur hinter LoF-Zugmaschinen mitgeführt werden. * Die Presse darf nur hinter land- o. forstwirtschaftlichen Zugmaschinen mitgeführt werden, die über eine dafür geeignete Verbindungseinrichtung verfügen und die vorhandene Stützlast des Anhängers aufnehmen können. *											
Zusätzliche Bemerkung zur Fahrzeugbeschreibung												
Zusätzliche Angaben:												

Gewichte (Leer)		(Stand: 01.2017)	
Ges. Gewicht:	7640 kg		
Achslast vorne:	---	kg	
Achslast hinten:	6675 kg		
Stützlast:	965 kg		
Bremsanlage: 2-Leitungs-Druckluftbremseanlage (StVZO)			
Anzahl:	1	Inhalt:	20 (ltr)
Druckbehälter:		Druckluft:	
	Vorne	Mitte	Hinten
	12" (2x)		9" (2x)
Hebelarm am Bremshebel:	Vorne	Mitte	Hinten
	150 mm		120 mm
BB-Nr.: Hallex BB62936 1			
Achsen: Tandemasch. Achsabstand: 1100 mm; 4-Räder gebremst.			
Hersteller:	BPW, Wackl		
Typ:	GSSTP 2 / 7008 SB		
Tragkraft:	7800 kg bei 40 km/h		
Radbreite:	Typ. N 3108-S - (4x) BPW	Abmessungen:	310 x 80 mm
Zugdeichsel: Typ. (D48) / i. E. gepulst			
Anmerkung Typ: D48: Mustergutachten FE1872*02		Prüfzeichen: TPN1-Nummer	
		TPN1-Nummer	Fzg. Ident-Nr.
		TPN1 0014 9788	...1014006
		TPN1	...



Vollständige Fahrzeuge / Complete Vehicle

EU-Übereinstimmungsbescheinigung / EU-Certification of conformity

Der Unterzeichner, Jan Horstmann (Geschäftsführer Konstruktion und Entwicklung), bestätigt hiermit, dass das bezeichnete vollständige Fahrzeug:
The undersigned, Jan Horstmann (CEO R&D), hereby certifies that the following complete vehicle:

1.1. Fabrikmarke (Firmenname des Herstellers) Make (Trade name of manufacturer)	: Krone
1.2. Typ Type	: RP701S1
1.2.1. Variante Variant	: AAAA0ADF
1.2.2. Version Version	: AX
1.2.3. Handelsbezeichnung Commercial name	: Comprima F 155 XC
1.3. Fahrzeugklasse, Unterklasse und Geschwindigkeitsindex Category, subcategory and speed index of vehicle	: S7a
1.4. Firmenname und Anschrift des Herstellers Company's name and address of manufacturer	: KRONE Agriculture SE Heinrich-Krone-Str. 10, 48480 Spelle
1.5.1. Lage des (der) gesetzlich vorgeschriebenen Fabriksschildes (Fabriksschilder) Location of the manufacturer's statutory plate	: Gehäuse vorne rechts housing right in front
1.5.2. Art der Anbringung des (der) gesetzlich vorgeschriebenen Fabriksschildes (Fabriksschilder) Method of attachment of the manufacturer's statutory plate	: genietet oder geklebt riveted or glued
1.6.1. Anbringungsstelle der Fahrzeug-Identifikationsnummer auf dem Fahrgestell Location of the vehicle identification number on the chassis	: Rahmen rechts frame right side
2. Fahrzeug-Identifizierungsnummer Vehicle identification number	: WMK

mit dem in der am 22.12.2022 erteilten EU-Typgenehmigung e24*167/2013*00032*06 beschriebenen Typ in jeder Hinsicht übereinstimmt und zur fortwährenden Teilnahme am Straßenverkehr in Mitgliedsstaaten mit Rechtsverkehr, in denen metrische Einheiten für das Geschwindigkeitsmessgerät verwendet werden, zugelassen werden kann.
conforms in all respects to the type described in EU type-approval e24*167/2013*00032*06 issued on 22.12.2022 and can be permanently registered in Member States having right hand traffic and using metric/imperial units for the speedometer

Ort, Datum / Place, Date Spelle, den 13.03.2023
Unterschrift / Signature:

03

Administration and dispatch of COC



- COC-Data maintenance is the task of the homologation department.
- SAP-Tool for automated COC-printing needed some development time, continuous improvements are made.
- Different SAP-transactions, like:
 - Maintenance of object dependencies between material (machine) and approval number.
 - Maintenance of language-dependent texts and templates.
 - Maintenance of individual machine data (technical data in the COC).

TVV Schlüssel	Achsennummer	Reifennummer	Baureihe	Handelsbez.	Ach...	Radanzahl	Anza...	Lage A...	Anzahl gel. A...	Lage gel. A...	Anzahl geb. A...	Lage geb. A...	max. Leermasse	min. Leermasse	Gesamtmasse	Achslast 1	Achslast 2	Achslast 3	Achslast 4	Stützlast ...	Reifenkomb.	Reifenabm.	
RP701S1/AAAA0ADF/AO	270251380	202654320	RP701-10	Comprima F 125	1	2			0		0		3.500	3.150	3.500	3.500	0	0	0	0	900	AAAA0ADF/AO	15.0/55-17 IV
RP701S1/AAAA0ADF/AO	270251380	202654320	RP701-20	Comprima F 155	1	2			0		0		3.500	3.150	3.500	3.500	0	0	0	0	900	AAAA0ADF/AO	15.0/55-17 IV
RP701S1/AAAA0ADF/AO	270251380	202654330	RP701-10	Comprima F 125	1	2			0		0		3.500	3.150	3.500	3.500	0	0	0	0	900	AAAA0ADF/AO	15.0/55-17 IV
RP701S1/AAAA0ADF/AO	270251380	202654330	RP701-20	Comprima F 155	1	2			0		0		3.500	3.150	3.500	3.500	0	0	0	0	900	AAAA0ADF/AO	15.0/55-17 IV
RP701S1/AAAA0ADF/AO	270251380	202654340	RP701-10	Comprima F 125	1	2			0		0		3.500	3.150	3.500	3.500	0	0	0	0	900	AAAA0ADF/AO	15.0/55-17 IV
RP701S1/AAAA0ADF/AO	270251380	202654340	RP701-20	Comprima F 155	1	2			0		0		3.500	3.150	3.500	3.500	0	0	0	0	900	AAAA0ADF/AO	15.0/55-17 IV

Administration and dispatch of COC



- COC-printing-process is triggered automatically on machine dispatch.
 - Dispatch-employee receives printing-order in work queue.

Equipment	TVV Schlüssel	Auslieferung	Adresse	Empfänger	Straße	Ort	Informal senden	CoC-Druck ist deaktiviert
1095171	BP40552/BBBB2BEA/AV	86981348	338769			Eppenstein	<input type="checkbox"/>	<input type="checkbox"/>
1113657	TT301Z2/BBBB2CAA/AU	87239848	26952			Friedberg-Derching	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1128929	KS403C2/AAA1AED/AO	87235425	72042			Valdahon	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1130682	RP201S1/AAA0ADF/AX	87235784	23840			Steffenberg	<input type="checkbox"/>	<input type="checkbox"/>

- Employee manually clicks on printing-order, COC is printed on neobond-paper.
- Covering letter is also printed automatically.
- Employee puts COC and covering letter into envelope.
- Digital copy of COC and covering letter goes to archive.

Feb 9, 2023

Certificate of Conformity (COC) according REGULATION (EU) No 167/2013

Dear Sir or Madam,

attached you receive the Certificate of Conformity (COC) according REGULATION (EU) No 167/2013 on the approval and market surveillance of agricultural and forestry vehicles for the following machine:

Manufacturer KRONE Agriculture SE
FIN WMKI

With kind regards,

Maschinenfabrik
Bernard Krone GmbH & Co. KG

Attachment: Certificate of Conformity (COC)

04

Vehicle registration with COC and acceptance in EU



- The following statements are only valid for us as manufacturers of class R & S vehicles. The situation with tractors may be different.
- For us there are three ways that countries deal with COCs:
 - Some countries don't ask for documents for R & S vehicles at all. But: The number of these countries is decreasing.
 - In some countries, having the COC is sufficient for the customer for participation in road traffic.
 - In an increasing number of countries there is a need for registration. Sometimes the basis for registration is the COC itself, sometimes the whole type approval is needed.

04

Country specifics dealing with
COCs at initial registration



- The following statements are only valid for us as manufacturers of class R & S vehicles. The situation with Tractors may be different.
- In most of the European Countries the COCs are accepted without any further ado.
- Issues we are facing at initial registration:
 - Austria does not accept COCs, if the type approval is not on the ETAES-server
 - Problem: type approval authorities sometimes need some weeks to upload the type approvals on the ETAES-server, customer can't register his machine. (In our view, this procedure contradicts 167/2013 Article 38 (1))
 - Italy: Registration of WVTA and every extension at Ministry of Transport in Rome necessary.
 - Problem: Ministry of Transport in Rome often needs a lot of time (~ 6 months) for registration. Customer is not able to drive the machine legally on public roads until finished.

Country specifics dealing with COCs at initial registration



- Issues we are facing at initial registration:
 - France: CNIT
 - UTAC is Central Technical Body for the technical inspection of vehicles in France.
 - UTAC uses EU type approval document files for vehicle registrations.
 - UTAC is assigning national type identification codes (CNIT), based on EU type approval documents.
 - Process needs time.

Distance from vertical plane passing through the axis of the rear axle	Minimum :	3.600	mm
	Maximum :	7.300	mm
Comments			
CNIT: S10KKRMR3742437			

- In some rare cases National Approval Authorities doubt the correctness of type approvals or interpret points differently and thus prevent the registration of machines that have a valid WVTA.
 - Long discussions,
 - manufacturer on the shorter lever,
 - Until now, we always found a solution,
 - Customer is unhappy, because process needs time.

06

COC in European trade and resale of used vehicles



- The number of used machines sold across national borders is continuously increasing.
 - Dealer networks are getting bigger and grow beyond national borders.
 - Marketing of used machines via internet, Customer to Customer.
 - EU Type-approval makes cross-border transactions much easier, because documents must be recognized in whole EU.
- KRONE gets more requests for duplicates for lost COCs
 - Machines still are often sold without having a look on registration documents.
 - In the aftermath, customers find out that those documents are needed.

07

Final assessment and benefits of a type approval



Final assessment and benefits of a type approval

- For KRONE, the advantages of EU type approval clearly outweigh the disadvantages.
 - One document (COC) for the whole EU, no more technical differences on machine level.
- vs.
- Effort for new processes like COP, COC handling and printing, RMI, (SUMS),...

- EU type approval has become the de facto standard in some European countries, so it is no longer really “optional” for class R & S vehicles.

Thank you for your attention!



Initial Assessment Conformity of Production

Agenda

1. Initial assessment

- Purpose
- Definitions
- Obligations of the manufacturer
- Process

2. Conformity of Production

- Initial assessment vs. Conformity of Production
- CoP-P and CoP-Q
- CoP requirements
- Series monitoring

3. Conclusion

Initial assessment

- Purpose
- Definitions
- Obligations of the manufacturer
- Process



Initial Assessment

Purpose

Company ABC wants to sell vehicles with CoC

- Type-Approval is required
 - Transport Authorities only grant approvals to manufactures successfully assessed with regard to production arrangements to ensure conformity to the approved type.
 - Company ABC wanted to become manufacturer and get their production assessed.

➔ Initial assessment must be carried out!

Initial Assessment

Definitions

- Initial assessment
 - Audit of the **quality management system**, which ensures conformity of produced vehicles, parts or system to the requirements of the Type-Approval.
- Manufacturer
 - Any natural or legal person who is responsible to the approval authority for **all aspects** of the type-approval, whether or not the natural or legal person is directly involved in all stages of the design and construction.

Initial Assessment

Obligations of the manufacturer (MF) – Extract of CR (EU) No 167/2013

- Chapter II, Article 8
 - (1) MF shall ensure that when placing vehicles on the market, they are **manufactured and approved in accordance with the requirements** set out in this, and delegated, Regulations.
 - (6) MF is responsible to the approval authority for **all aspects** of the approval process and for ensuring conformity of production, whether or not they are directly involved in all stages of the construction.
 - (7) MF shall ensure that procedures are in place for **series production to remain in conformity** with the approved type. **Changes in design or characteristics and changes in the requirements** to which a vehicle is declared to conform **shall be taken into account** in accordance with Chapter VI
- Chapter VI, Article 29
 - (1) MF shall **inform** without delay the **approval authority** that granted the EU type-approval of any **change** in the particulars recorded in the information package.

Chapter V, Article 28

- (6) The Commission shall adopt delegated acts concerning the detailed arrangements with regard to **conformity of production => CR(EU) No 1322/2014, annex IV**

Initial Assessment

Process

- Third party audit by:
 - Transport authority itself
 - or
 - Authorised partner of Transport Authority, e.g. designated Certification body

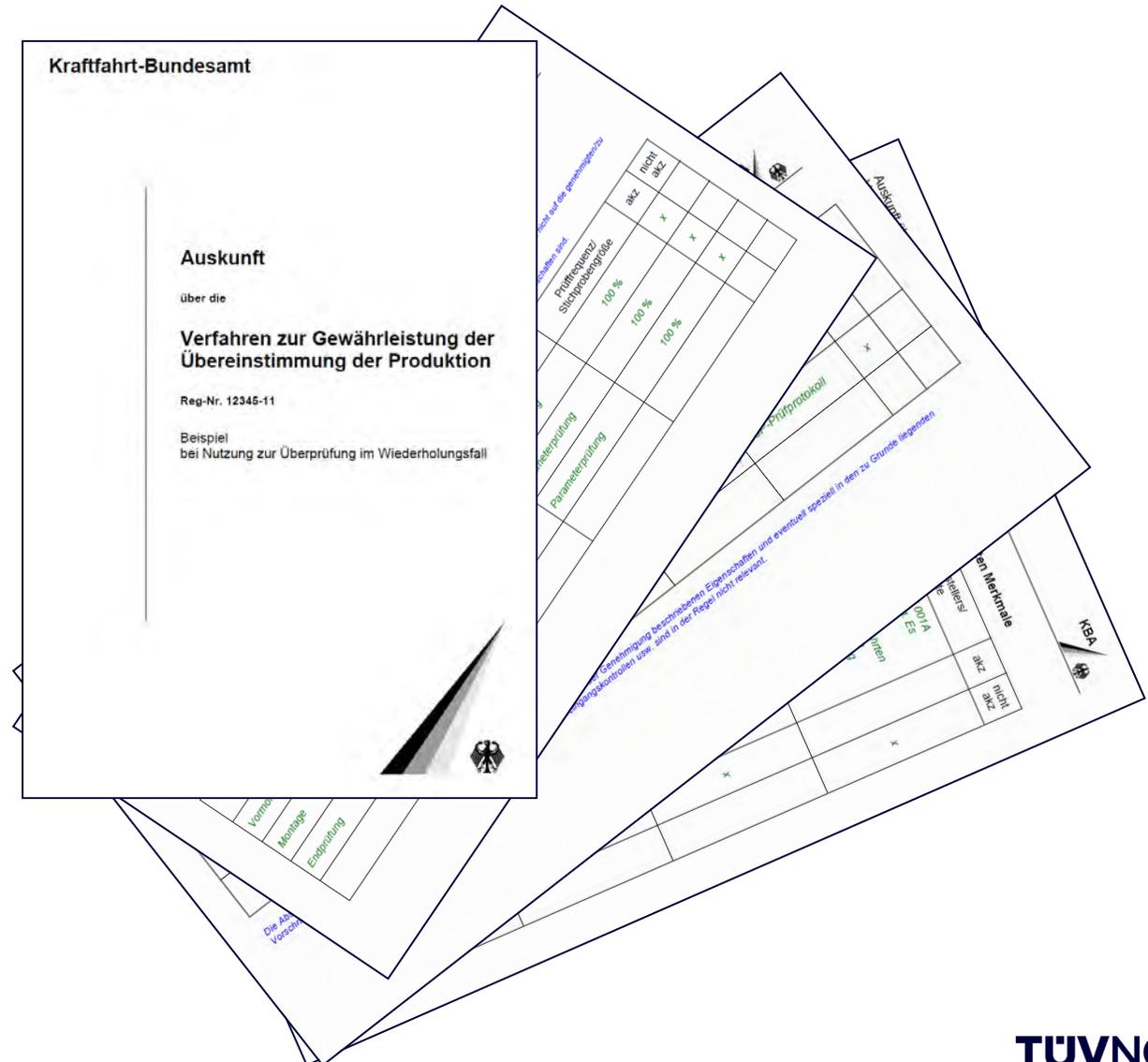


Pic: <http://www.webcooltips.com>

Initial Assessment

Process – Auditor's viewpoint

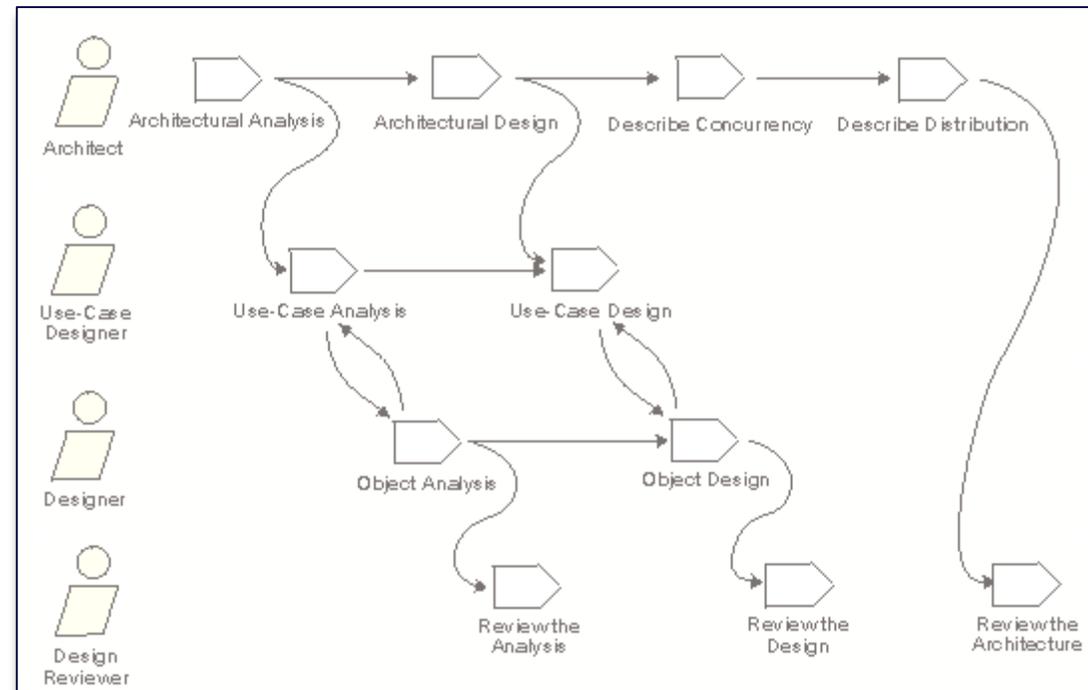
- The auditor wants to...
 - ...Complete his questionnaire



Initial Assessment

Process – Auditor's viewpoint

- The auditor wants to...
 - ...Complete his questionnaire
 - ...Understand the overall context



Initial Assessment

Process – Auditor's viewpoint

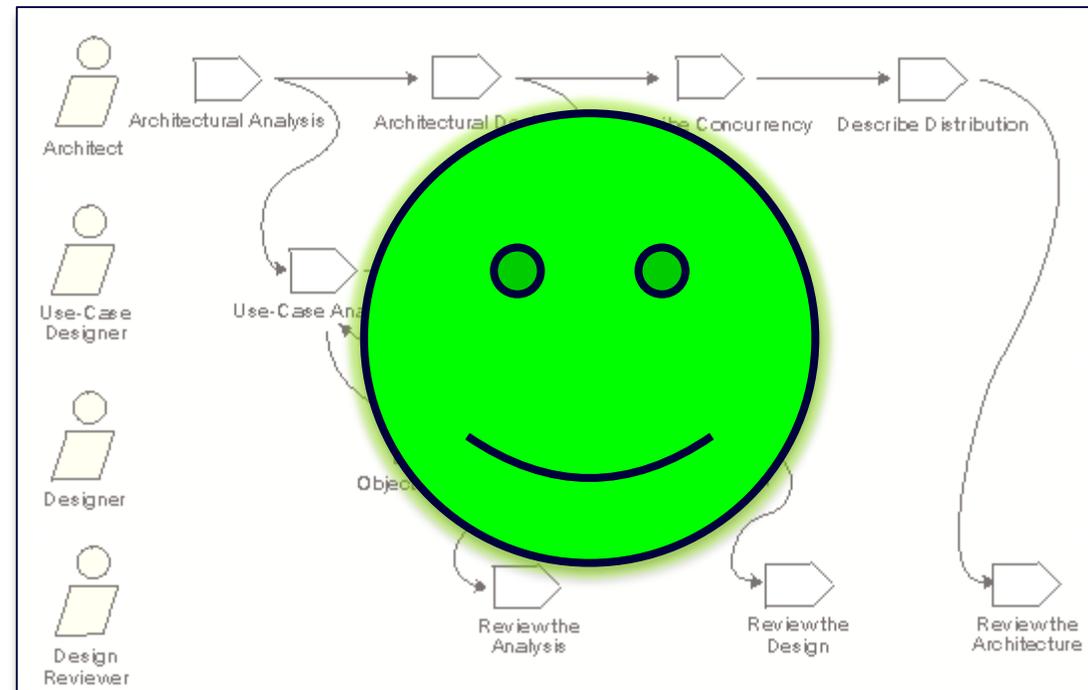
- The auditor wants to...
 - ...Complete his questionnaire
 - ...Understand the overall context
 - ...Pull a sample to dig deeper



Initial Assessment

Process – Auditor's viewpoint

- The auditor wants to...
 - ...Complete his questionnaire
 - ...Understand the overall context
 - ...Pull a sample to dig deeper
 - ...Asses the efficiency of the procedure



Initial Assessment

Process – Result

- Passed...

Kraftfahrt-Bundesamt
Kraftfahrt-Bundesamt • 24932 Flensburg



Company ABC
Musterstraße 1
12345 Musterstadt
Germany

your sign: Max Mustermann
your message from: 22.12.2016
our sign: 400 - 1234
contact person: Herr Muster
phone: (04 61) 3 16-
fax: (04 61) 3 16-
e-mail: 422@kba.de
date: 15.06.2023

Confirmation of the successfully completed initial assessment

Dear Sir or Madam,

The initial assessment of your company

Company ABC
DE-12345 Musterstadt

has been finished with a positive result.

I am glad to tell you that the verification of your quality insurance system according to the products - named in the document 'application details' – compared to Kraftfahrt-Bundesamt is fulfilled.

In case no type approval is granted within 1 year after the initial assessment was finished successfully, the initial assessment has to be repeated.

If applications for approval of products of a different kind are submitted it will be necessary to expand the existing initial assessment.

We hope for a good cooperation. If you have questions, do not hesitate to contact us.

With best regards

M.Muster 



Conformity of Production

- Initial assessment vs. Conformity of Production
- CoP-P and CoP-Q
- CoP requirements
- Series Monitoring

Conformity of Production (CoP)

Initial Assessment vs. CoP

- Purpose of CoP arrangements
 - The CoP procedures shall ensure that **each vehicle** produced is **in conformity** with the specification, performance and marking requirements of the approved type
 - This procedures include inseparably the assessment of quality management systems (initial assessment) **and** verification of production-related controls.
 - CoP arrangements can be splitted in:
 - CoP-Q: assessment of quality management systems
 - CoP-P: verification of production-related controls Quality management system
 - Initial assessment is an audit of the entire Quality Management system (CoP-audit)

Conformity of Production (CoP)

CoP requirements – Extract of CR (EU) 1322/2014, annex IV

- Section 4.3
 - The holder of the type-approval shall
 - Ensure the existence and application of procedures for effective control of the conformity of products
 - Have access to the testing equipment necessary for checking conformity
 - Ensure that test result data are recorded
 - Analyse the results of each type of test, in order to verify and ensure the stability of the product characteristics
 - ...



- But...how?

Conformity of Production (CoP)

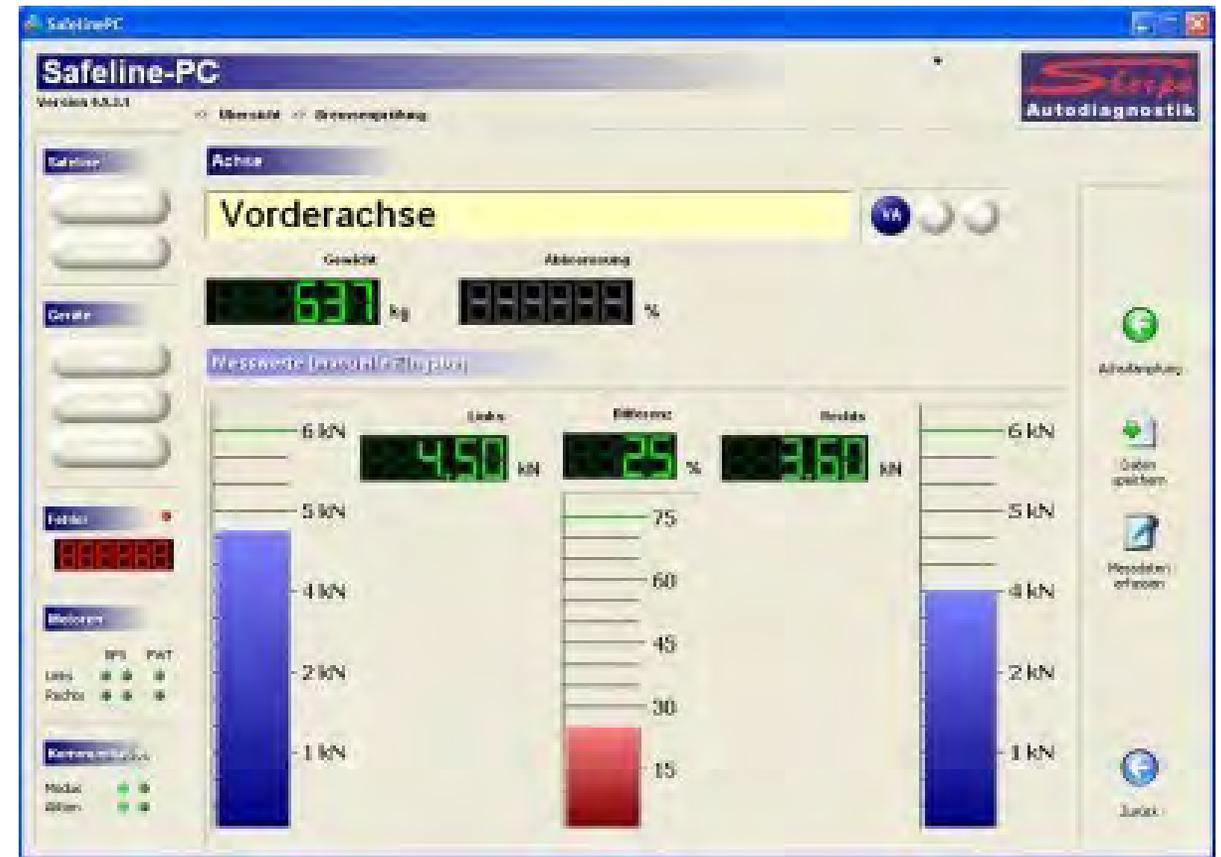
Series Monitoring

- All new?
- No!
 - Integrate CoP measures in existing processes
 - Create reference between the relevant legal acts and the process steps

Conformity of Production (CoP)

Series Monitoring - Implementation

- Inspections during production
 - For example 100 % of vehicles on brake tester

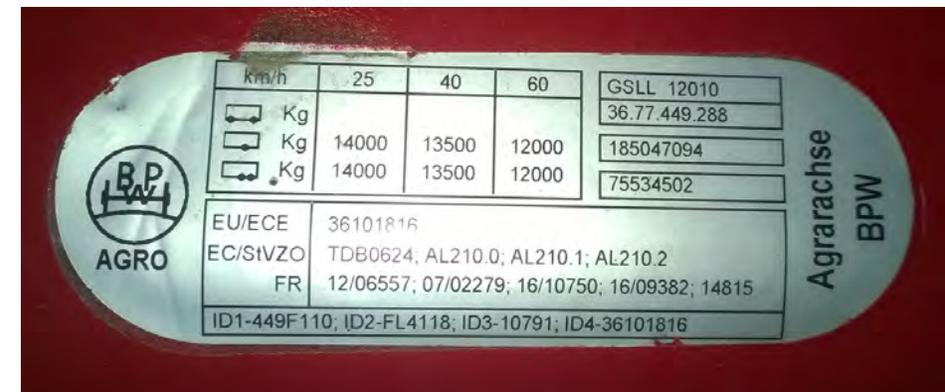


Pic: sherpa.automechatronik

Conformity of Production (CoP)

Series Monitoring - Implementation

- Inspections during production
 - For example 100 % of vehicles on brake tester
- Inspection of state of production
 - Visual inspection, simple measurements or functional tests to identify the parts, required marking of parts



Conformity of Production (CoP)

Series Monitoring - Implementation

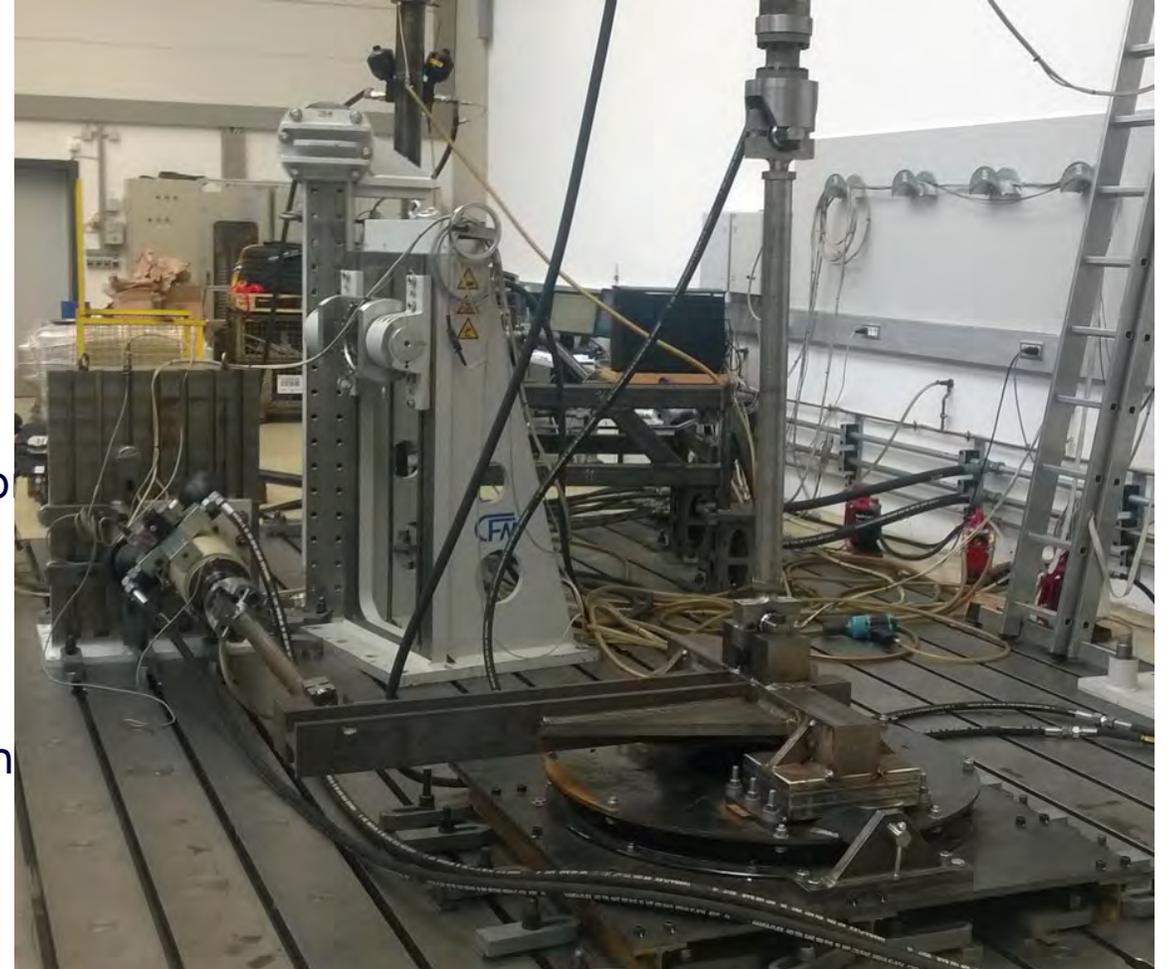
- Inspections during production
 - For example 100 % of vehicles on brake tester
- Inspection of state of production
 - Visual inspection, simple measurements or functional tests to parts
- Laboratory tests
 - Test methods which ensure the continual fulfillment of quality requirements, for example: material analysis, inspection of welds



Conformity of Production (CoP)

Series Monitoring - Implementation

- Inspections during production
 - For example 100 % of vehicles on brake tester
- Inspection of state of production
 - Visual inspection, simple measurements or functional tests
- Laboratory tests
 - Test methods which ensure the continual fulfillment of requirements, e.g. material analysis, inspection of welds
- Repetition of type approval tests
 - Complete test according to the regulations of the relevant regulation



Conformity of Production (CoP)

Series Monitoring – sample size

- Criteria to establish the sample size
 - Safety relevance
 - Process reliability
 - Assessment of the test results during type approval testing in comparison to the allowed legal limits
 - Possible mistakes in marking / identification
 - Specifications of the regulations

How are approved characteristics ensured?

Conclusion

- Manufacturer is responsible!!!
- Complex subject
- Adequate measures in relation to continuous product quality
- COP-system assessments as an indicator for the dimensioning of the sample size at re-examination

TÜVNORD

Questions?

Bastian Büschking

T.: +49 511 9986 1587

M.: +49 160 888 1935

E.: bbueschking@tuev-nord.de

tuev-nord.de



Air Brake Systems for T, C and R, S vehicles

Hauke Tietjen – Dipl.-Ing. Tietjen GmbH

Symposium - TÜV Nord Mobility - 15th June 2023

Agenda

- Introduction Tietjen GmbH
- Which vehicle need a brake - Requirements
- Compliance with brake performance on certain type of vehicle
- Design of a braking system
- Response time
- Brake calculation, tyre, axle and „worst case“ consideration
- Experience and support of medium-sized companies



Introduction Tietjen GmbH

- Family business
- 75 employees
- Sales of approx. 4000 retrofit kits per year
- Air brake systems for OEs and dealers
- 5000 different kits available for retrofitting
- Over 40 years of experience in air brake system developing and manufacturing
- Export share approx. 40% (mainly EU)
- Exclusive distributor for retrofit kits in FR and NL / BE



Introduction Tietjen GmbH

Main business sectors

After-market / Kits



Air brake systems, kits and spare parts for:

- Agricultural machinery dealers
- Construction machinery dealers
- Car/vehicle workshops



Off-Highway OE



Air brake systems for off-highway OE manufacturers e.g.:

- Tractors
- Trailers
- Telescopic loaders
- Harvesters
- Construction machinery
- Forklifts



Trailer OE



Air brake systems for manufacturers from the trailer OE range, e.g.:

- Central axle trailers
- Drawbar trailers
- Semi-trailers



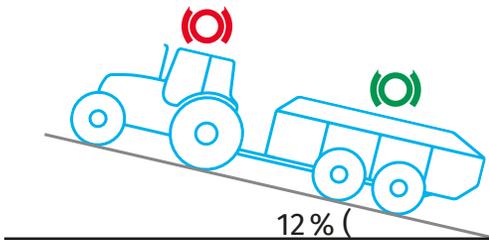
Which vehicle need a brake

Design of air brake systems for tractors - Requirements according to VO (EU) 2015/68

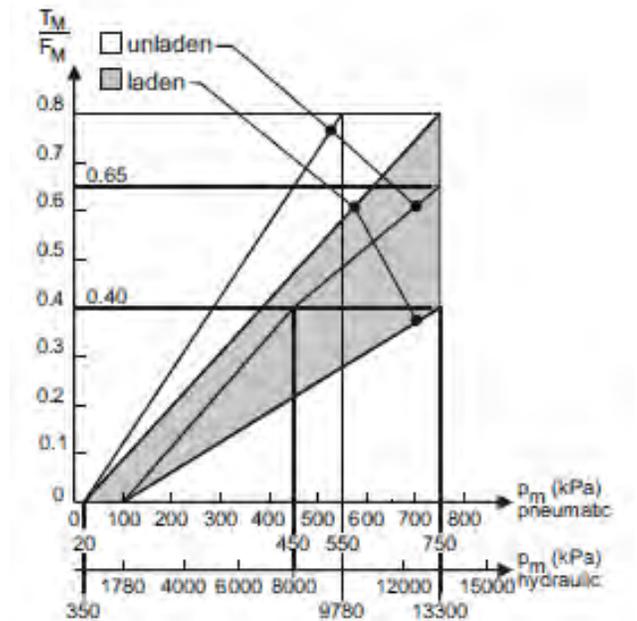
Vehicle class T and C



- Compatibility bands
- Activation of the trailer brake by the secondary brake system
- Graduable activation of the trailer brake by the secondary brake system (> 40 kph)
- EC check position



- Graduable braking of the service brake system

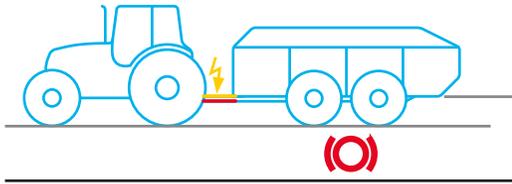


Source:
VO (EU) 2015/68, Appendix II,
Annex 1, 3.1.6.1

Which vehicle need a brake

Design of air brake systems for **tractors** - Requirements according to VO (EU) 2015/68

- Brakeaway function for the control line



- min 6,5 bar on yellow coupling head with active parking brake even with removed ignition key
- Pressure regulator: Cut-in pressure of min 7,0 bar
- Response time
- Air tank volume test
- Filling time measurement
- Test connection

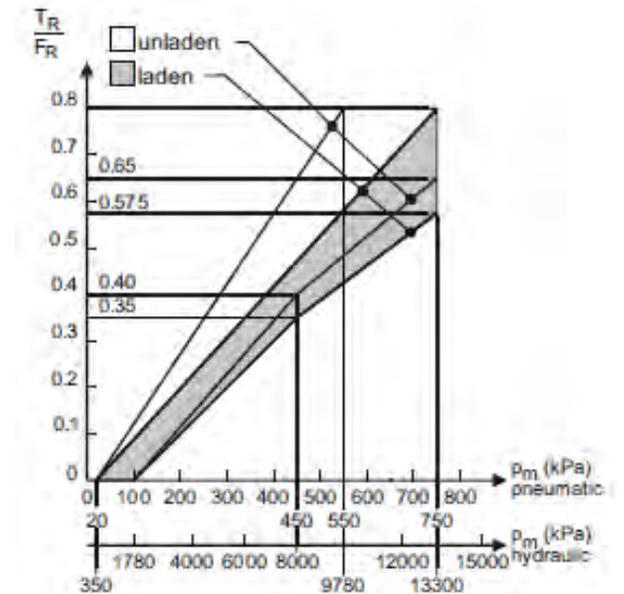
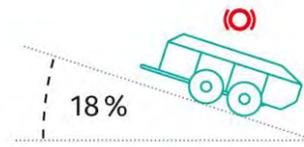
Which vehicle need a brake

Design of air brake systems for **trailers** - Requirements according to VO (EU) 2015/68

Vehicle class R and S



- Compatibility bands
- ABS > 60 kph
- Automatic load sensing. Attention exceptions possible
- The parking brake system shall be capable of holding the laden towed vehicle when separated from the tractor, on an 18% up and down-gradient
- The service braking system must act on at least two wheels on each axle
- Automatic adjustment in case of brake wear (automatic slack adjuster)
- Response time
- Air tank volume test



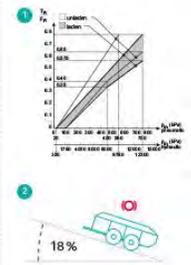
Source:
VO (EU) 2015/68, Appendix II,
Annex 1, 1.1.1.1

Which vehicle need a brake

Design of air brake systems for trailers - Requirements according to VO (EU) 2015/68 - Summary -

																									
Vehicle category		R1		R2		R3		R4		S1		S2													
Specification according to VO (EU) 167/2013		Technically permissible masses of all axles over 750 kg up to 1500 kg		Technically permissible masses of all axles over 1500 kg up to 3500 kg		Technically permissible masses of all axles over 3500 kg up to 21000 kg		Technically permissible masses of all axles over 21000 kg		Technically permissible masses of all axles over 750 kg up to 3500 kg		Technically permissible masses of all axles over 3500 kg													
Vehicle subcategory		R1a		R1b		R2a		R2b		R3a		R3b		R4a		R4b		S1a		S1b		S2a		S2b	
Speed (k.p.h.)		≤ 30	≤ 40	> 40	≤ 30	≤ 40	> 40	≤ 30	≤ 40	> 40	> 60	≤ 30	≤ 40	> 40	> 60	≤ 30	≤ 40	> 40	≤ 30	≤ 40	> 40	≤ 30	≤ 40	> 40	> 60
VO (EU) 2015/68																									
Annex II, 3.2.1.2	The sum of the braking forces must be at least ___% of the maximum wheel load	35	50	50	35	50	50	35	50	50	50	35	50	50	50	35	50	50	35	50	50	35	50	50	50
Annex II, Appendix 1, 1.1.1.1	Fulfill the compatibility band in laden and unladen condition	×	•	•	×	•	•	×	•	•	•	×	•	•	•	×	•	•	×	•	•	×	•	•	•
Annex I, 2.2.2.16	ABS required	×	×	×	×	×	×	×	×	×	•	×	×	×	•	×	×	×	×	×	×	×	×	×	•
Annex I, 2.1.1.5	Automatic load sensing required. Attention: exceptions	×	•	•	×	•	•	×	•	•	•	×	•	•	•	×	•	•	×	•	•	×	•	•	×
Annex II, 3.2.2.1	The parking brake system shall be capable of holding the laden towed vehicle stationary, when separated from the tractor, on an 18% up and down-gradient	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Annex I, 2.2.2.4.1	The service braking system must act on at least two wheels on each axle	×	×	•	×	×	•	×	×	•	•	×	×	•	•	×	×	•	×	×	•	×	×	•	•
Annex I, 2.2.2.8.1	Automatic adjustment in case of brake wear (automatic slack adjuster)	×	×	×	×	×	×	×	×	•	•	×	×	•	•	×	×	×	×	×	×	×	×	•	•
Annex III, 4.5.2	Response time	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Annex IV, 1.3.1	Reservoir volume test	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

• Requirement must be fulfilled
 × Requirement must not be fulfilled
 Exceptions:
❶ Class Ra ≤ 30 k.p.h. and Sa, not otherwise possible for technical reasons = three separate settings permissible
❷ In the special case of class Ra ≤ 30 k.p.h. and Sa, for which only „laden“ and „empty“ is possible due to the design = two separate settings permissible
❸ Class S, which does not contain any further load (max. 10% consumables)



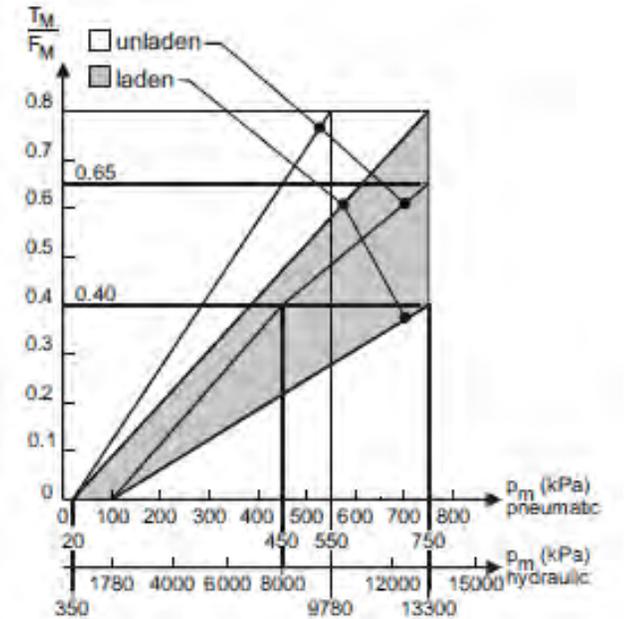
Compliance with brake performance on certain type of vehicle

- Tractor: Measurement of brake performance -

- Determine the unladen and the max. vehicle weight
- Install the measuring equipment in the braking system and on the vehicle
- Measure mean fully developed deceleration → test drive on test track
- Select trailer control valve with appropriate characteristics
- Validation of the valve by repeated test drives
- Record of
 - hydr. brake pressure
 - pneu. service brake pressure
 - driving speed
 - driving distance
 - brake pedal force



Stopper on brake pedal to receive reproducible measuring results



Source:
VO (EU) 2015/68, Appendix II,
Annex 1, 3.1.6.1

Compliance with brake performance on certain type of vehicle

- Measurement setup tractor -

- 1 Data logger
 - Pneumatic pressure sensors
 - Hydraulic pressure sensors
 - Pedal force sensor
 - Data measuring wheel

- 2 Measuring wheel
 - Driving distance
 - Speed
 - Deceleration

- 3 Front weight

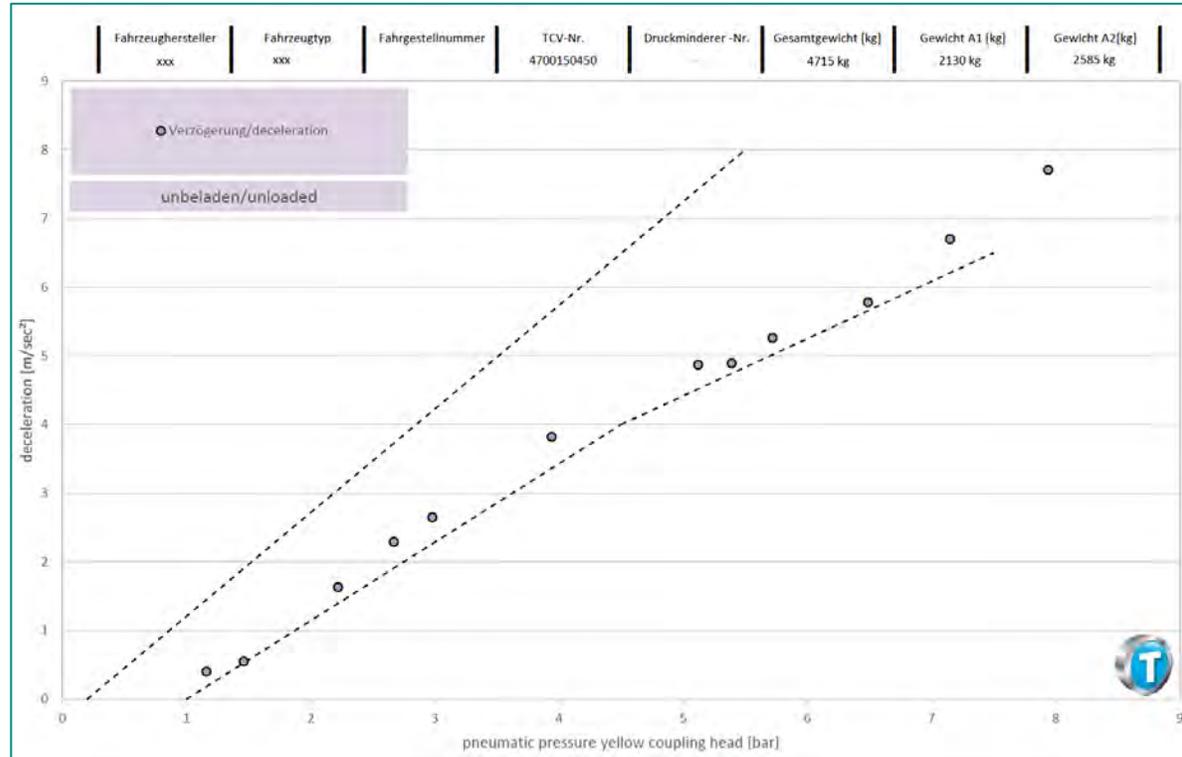
- 4 Rear weight



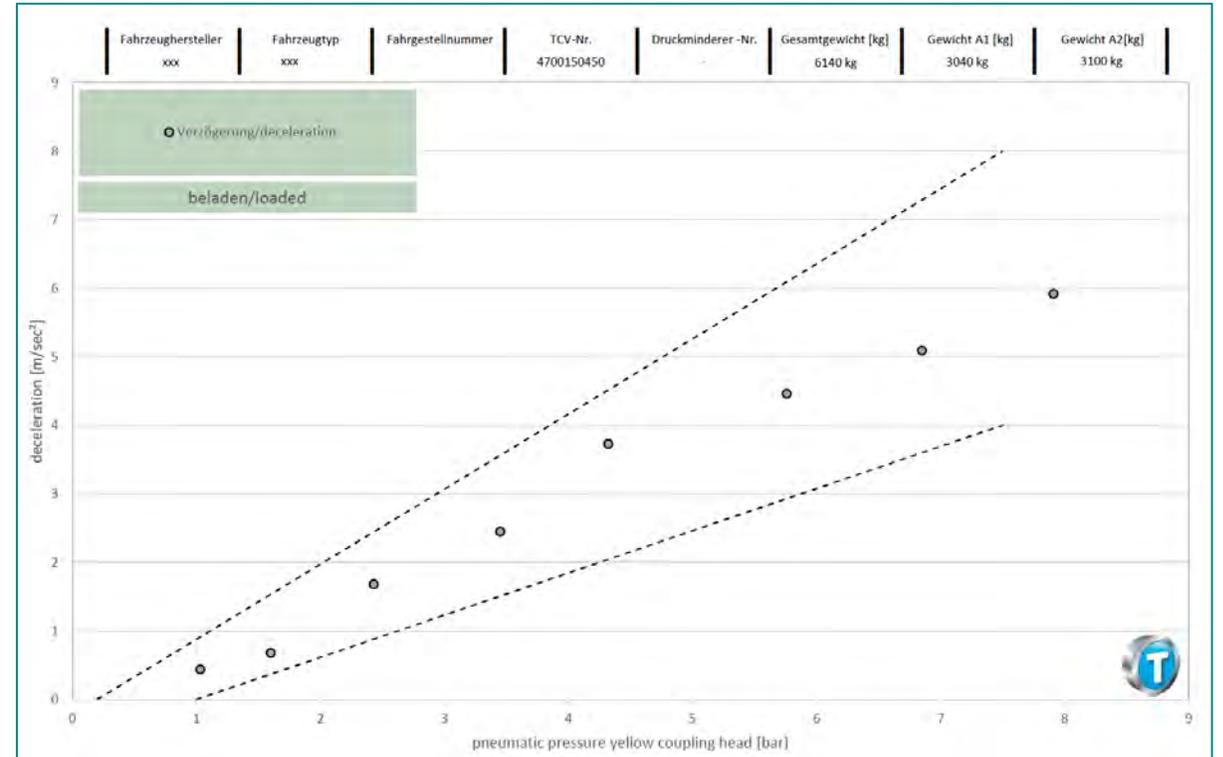
Example of a measurement setup for a loaded tractor

Compliance with brake performance on certain type of vehicle

- Measurement result tractor -



Measurement result unloaded



Measurement result loaded

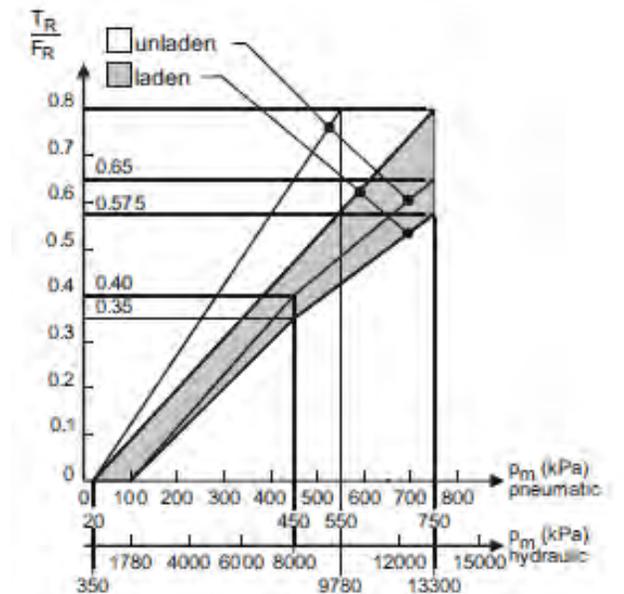
Compliance with brake performance on certain type of vehicle

- Trailer: Measurement of brake performance -

- Define tractor and trailer weight
- Install the measuring equipment in the braking system and on the vehicle
- Install equipment for controlling predefined pressure in the yellow control line



- Running-in process of the drum brake recommended to optimize the braking behavior
- Record of
 - pneumatic service brake pressure
 - driving speed
 - driving distance



Source:
VO (EU) 2015/68, Appendix II,
Annex 1, 1.1.1.1

Compliance with brake performance on certain type of vehicle

- Measurement setup trailer -

1

Data logger

- Pneumatic pressure sensors
- Data measuring wheel

2

Measuring wheel

- Driving distance
- Speed
- Deceleration



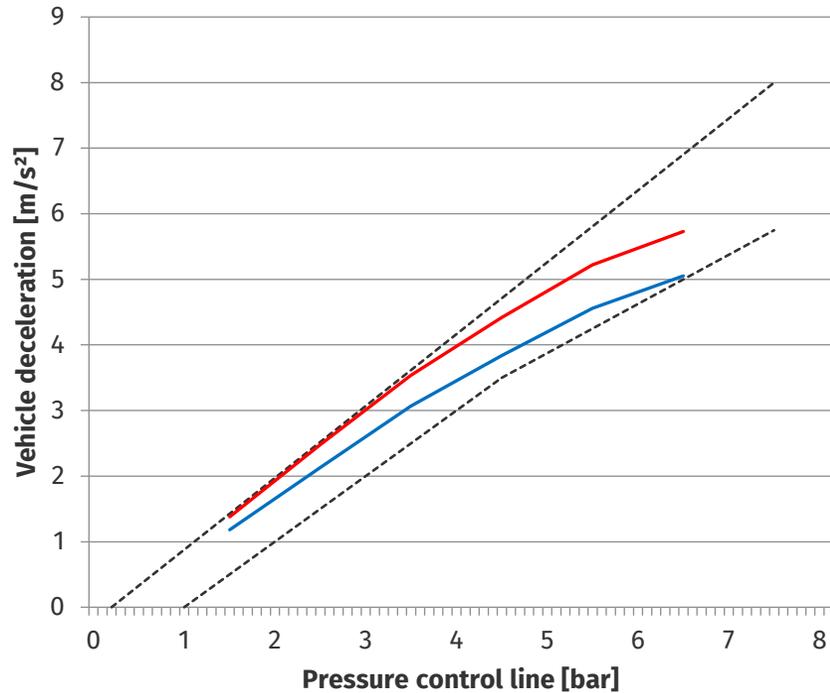
Compliance with brake performance on certain type of vehicle

- Measurement result trailer -

Loaded condition

40 km/h | Drawbar load 3920 kg | Axle load 21100 kg

60 km/h | Drawbar load 3940 kg | Axle load 18100 kg



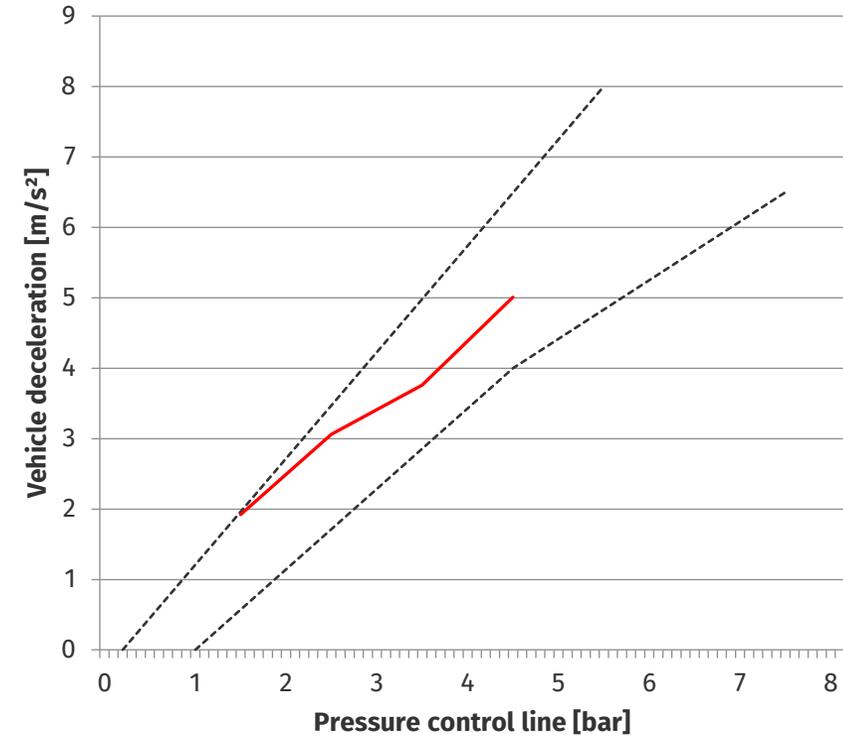
— 40 km/h

— 60 km/h

Unloaded condition

40 km/h | not applicable due to 60 km/h measurement, no differences in unladen weight

60 km/h | Drawbar load 320 kg | Axle load 7280 kg

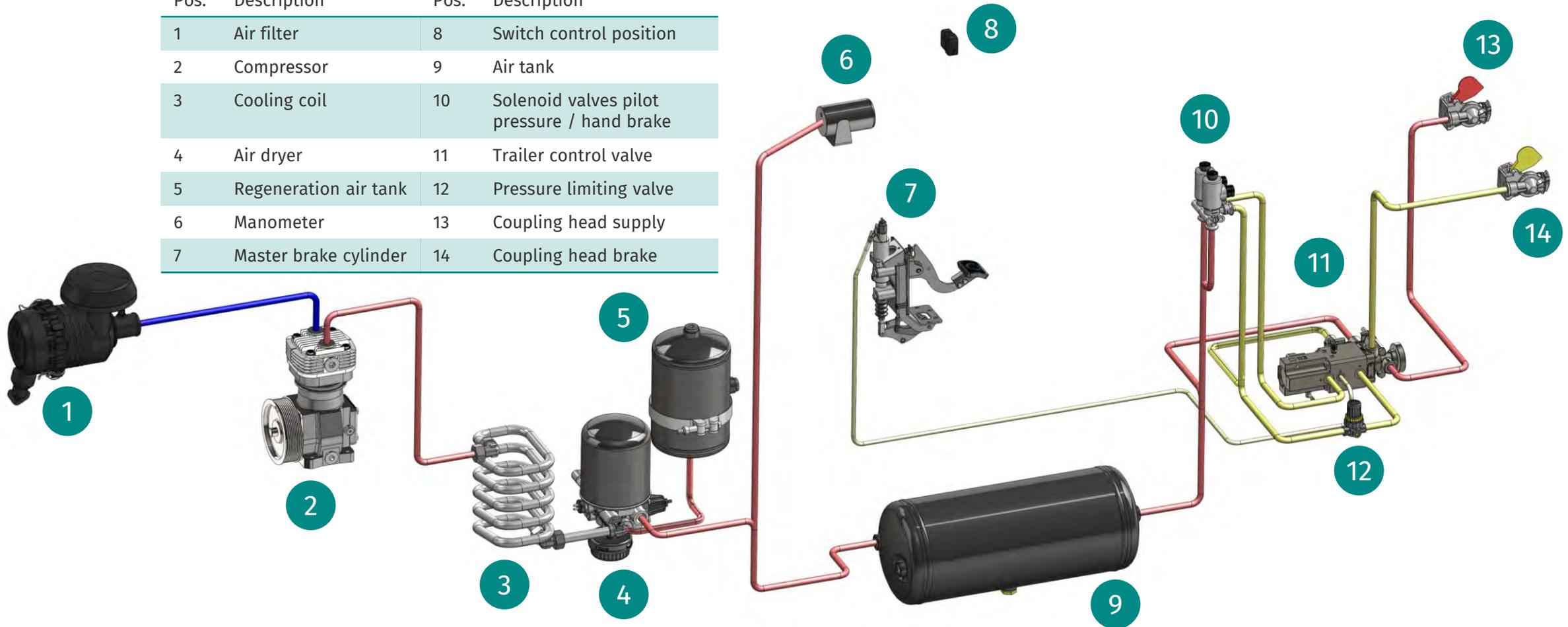


— 60 km/h

Design of a braking system

- Tractor -

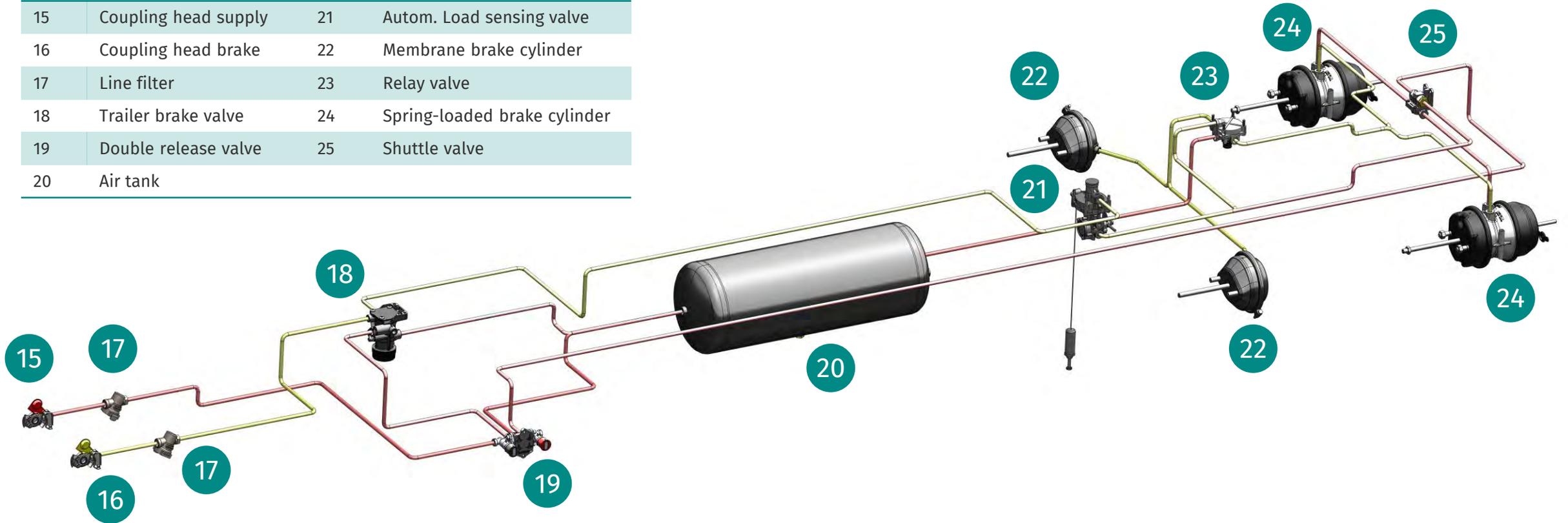
Pos.	Description	Pos.	Description
1	Air filter	8	Switch control position
2	Compressor	9	Air tank
3	Cooling coil	10	Solenoid valves pilot pressure / hand brake
4	Air dryer	11	Trailer control valve
5	Regeneration air tank	12	Pressure limiting valve
6	Manometer	13	Coupling head supply
7	Master brake cylinder	14	Coupling head brake



Design of a braking system

- Trailer -

Pos.	Description	Pos.	Description
15	Coupling head supply	21	Autom. Load sensing valve
16	Coupling head brake	22	Membrane brake cylinder
17	Line filter	23	Relay valve
18	Trailer brake valve	24	Spring-loaded brake cylinder
19	Double release valve	25	Shuttle valve
20	Air tank		



Response time

- Tractor -

- Maximum time from activating the brake pedal until pressure is applied to the yellow coupling head of the tractor
- Measuring system = CTU (Conformity Test Unit)
- System pressure must be equal to the switch-on pressure of pressure regulator (e.g. 7,3 bar)
- Connection of CTU pressure sensor to the coupling head of the control line (yellow)
- Connection of 385cm³ volume to the coupling head of the supply line (red)



Switch on pedal to trigger measurement



Pressure sensor, volume 385cm³

Proportion of asymptotic end value in the control line	Limit value
10%	0,2 sec
75%	0,4 sec



CTU

Response time

- Trailer -

- Time from the pressure rise in the control line until the pressure is applied to the brake cylinder on last axle
- This response time must not exceed **0.4 seconds**.
- Measuring system = CTU (Conformity Test Unit)
- Set up measurement equipment:
 - Connection of the CTU pressure sensor to the rear (last axle) brake cylinder of the vehicle
 - Set the load sensing valve to full load condition



Response time

- Trailer -

- Optimization of response time by
 - Installation of relay valve
 - Optimal diameters of pipes and hoses
 - Using fewer fittings with e.g. 90° angle (use simple and straight paths)
 - Correct adjustment of mechanical service brake of trailer



Brake calculation, tyre, axle and „worst case“ consideration

- Brake calculation data sheet -

3. Load data

Centre-axle trailer

P_{st}

P_1

P_1 P_2

P_1 P_2 P_3

P_1 P_2 P_3 P_4

Drawbar trailer

P_{st}

P_1

P_1 P_2 P_3

P_1 P_2 P_3 P_4

E_R

h

	unladen	laden
Total mass (P)	kg	kg
Drawbar load (P_{st})	kg	kg
Axle load (P_1)	kg	kg
Axle load (P_2)	kg	kg
Axle load (P_3)	kg	kg
Axle load (P_4)	kg	kg

	unladen	laden
Total mass (P)	kg	kg
Drawbar load (P_{st})	kg	kg
Axle load (P_1)	kg	kg
Axle load (P_2)	kg	kg
Axle load (P_3)	kg	kg
Axle load (P_4)	kg	kg
Centre of gravity height (h)	mm	mm
Existing wheel base (E_R)	mm	mm

4. Brake type

S-cam brake

Spread-lever-brake

5. Aggregate type

Bogie

Stub-axle

Assembly without dynamic suspension

Assembly with dynamic suspension

Suspension

 mechanical
 hydraulic
 pneumatic

Wheel brake manufacturer (BPW, Knott, Peitz, ADR ...)

Wheel brake type (see type label on anchor plate) Required for brake calculation

TDB-No. (certificate of wheel brake)

Tyre size and manufacturer

Please specify existing lever lengths mm (see example below)

Required cylinders

 Piston cylinder

 Membran-type cylinder

 Spring brake cylinder

Lever lengths examples

Load sensing

 Manual control device
 Automatic load sensing valve

Air supply for second trailer (air connection)

 Yes
 No

ABS/EBS system

 ABS
 EBS

Which axle is braked

 Axle 1
 Axle 2
 Axle 3
 Axle 4

Cylinder quantity on this axle

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2

Brake calculation, tyre, axle and „worst case“ consideration

- Brake calculation for theoretical design to determine the following parameters:
 - Brake cylinder sizes
 - Brake lever lengths
 - Air tank volume (separate theoretical calculation)
 - Setting values for automatic load sensing valve
 - Braking devices to be installed + sequence of devices within the braking system
 - Not every valve is automatically suggested by the calculation program. A lot of experience is needed in the design of trailer brake systems.
- The theoretically calculated values must be verified in practice
- Tyre sizes
 - Consider min and max. tyre sizes in one calculation if possible to combine vehicles with as few calculations as possible



Brake calculation, tyre, axle and „worst case“ consideration

- Example brake calculation (extract) -

WABCO -brake calculation no: page 1 / 5

trailer (full, semi-, centre-axle) with air brake system acc. to Paragraph 41 StVZO v > 25 km/h <= 40 km/h

distribution: Tietjen GmbH
WDE

vehicle manufacturer: Loader wagon
trailer model : Loader wagon
trailer type : 2-axle-centre-axle-trailer
remarks : Air suspension
1 LSV in the control line
TRISTOP 1: 24/30
385/65R22,5 800/45R22,5
The recommended size of the air reservoir meets the requirements of 98/12 EC, annex 4, 1.3, in this case = 40 l

axle 1 + 2 : Colaert, 4218 S, ,

		unladen	laden
total mass	P in kg		24000
	PS in kg		4000
axle 1	P1 in kg	4000	10000
axle 2	P2 in kg	4000	10000
total axle mass	PR in kg	8000	20000

	axle 1	axle 2
no. of combined axles	1	1
no. of brake chambers per axle line	KD2 2	2
The power output corresponds to	BC 0036.0BC	0029.0
brake chamber manufacturer	WABCO	WABCO
chamber size	24/30	24
lever length	lBh in mm 178	178
brake factor	[-] 9,00	9,00
stat. tyre radius	rstat min in mm 520	520
stat. tyre radius	rstat max in mm 595	595
threshold torque	Co Nm 30,0	30,0

calculation:

chamber press. (servo)pcha at pm6,5bar	bar 6,6	6,6
piston force	ThA at pm6,5bar N 9358	9358
brake force (rstat min)T lad. at pm6,5bar N	57600	57600
brake force (rstat max)T lad. at pm6,5bar N	50463	50463
brake force within 1 & rolling friction proportion	% 50,0	50,0

braking rate z laden 0,587 for rstat min
z = sum (TR)/PRmax 0,514 for rstat max

Speed of trailer

Additional information concerning type of aggregate, tire sizes, load sensing valves, Tristop brake cylinder and air tank volume, etc.

Wheel brake manufacturer and wheel brake type

Weights

Quantity of brake cylinder / axle

Number of test certificate of brake cylinder (only certificated brake chambers are used in WABCO brake calculation software)

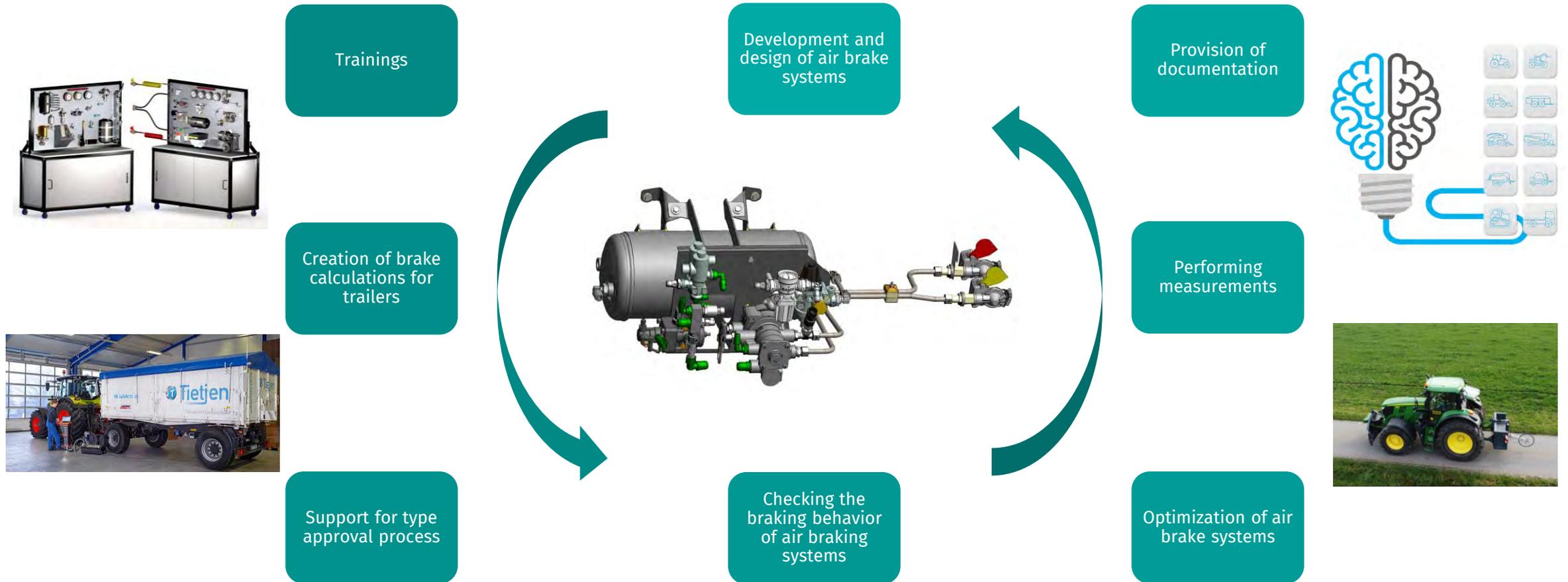
Disposition of brake ratios on first and second axle

Calculated deceleration of trailer

axle 1:	axleload in kg	brake ch. pressure at pm = 6,5 bar	ratio i	pinLSV =6,5 bar i poutLSV in bar
	4000	3,5	1,90	3,5
	4250	3,8	1,75	3,8
	4500	4,0	1,65	4,0
	4750	4,2	1,55	4,2
	5000	4,4	1,50	4,3
	5250	4,7	1,40	4,6
	5500	4,8	1,35	4,7
	5750	5,0	1,30	4,9
	10000	6,6	0,93	6,5

Setting values for automatic load sensing valve

Experience and support of medium-sized companies





Thank you for your attention

A vertical strip on the left side of the slide features a close-up photograph of a single water droplet suspended in mid-air above a pool of water. The droplet is perfectly spherical and reflects light, creating a bright highlight. Below it, concentric ripples spread out across the water's surface. The background of this strip is a gradient of blue, from a lighter blue at the top to a darker blue at the bottom.

VDMA Association Activity in the Type Approval Process

Hannover, 15 June 2023

Andreas Schauer

VDMA Department of Transport

VDMA – Europe's largest industrial network



Numbers, data, facts

- » 3,600 member companies
- » 4.0 million employees in mechanical engineering in Europe, 1 million of them in Germany alone
- » 10 percent of total German R&D spending is in the mechanical engineering sector
- » 18 billion euros spent annually on innovation
- » Represents around 220 billion euros in industrial sales p. a.
- » Export ratio of 80 percent on average
- » 36 trade associations – including agricultural machinery
- » 6 national associations
- » 9 international representative offices

The three pillars of the VDMA

Unique network

- » We maintain organically grown member networks with players from all over the world

Benefit-oriented services

- » We advise and support our members worldwide with advice and action

Strong representation of interests

- » We represent the economic and technical interests of the industry in politics and business

The VDMA – your strong voice in Berlin and Brussels



National and international representation of interests

- » In its dealings with policymakers, industry, the general public, young people and a wide range of other target groups
- » With a wide range of instruments and sound know-how
- » With a wide range of tax, trade and economic topics
- » With concrete proposals geared to the reality of business

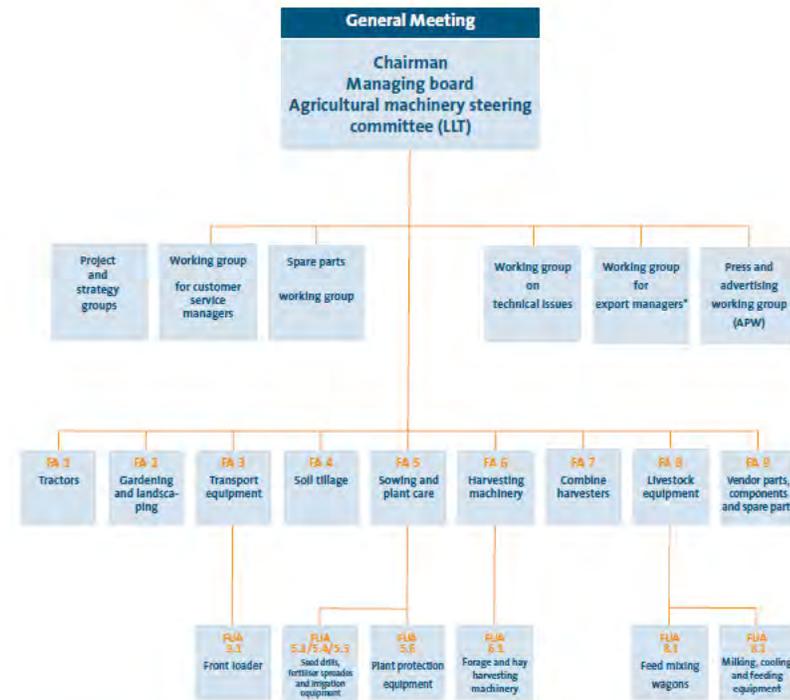
VDMA Ag Machinery – Europe's largest network for the agricultural machinery industry



- » The platform of the ag tech community
- » More than 200 member companies in Germany and Europe
- » 2,500 active contacts in technology, business, communication and representation of interests
- » High degree of representation in Europe
- » Best cooperation relations with international industry networks such as CEMA, OECD and AEM
- » Leading force in the international association landscape



Committee work – the key to joint success



* Working group for export managers
 - Regional group for Africa
 - Regional group for America
 - Regional group for Asia
 - Regional group for Europe
 - Regional group for CIS

Committee work – the key to joint success

- » **Board of Management/Steering Committee Agricultural Engineering**
- » **Nine specialist departments – product-oriented information**
 - Tractors
 - Garden and landscape care
 - Transport technology
 - Soil Preparation
 - Seed and plant care
 - Forage harvesting technology
 - Combine harvester
 - Dairy farming
 - Subcontracting, individual and spare parts





Committee work – the key to joint success

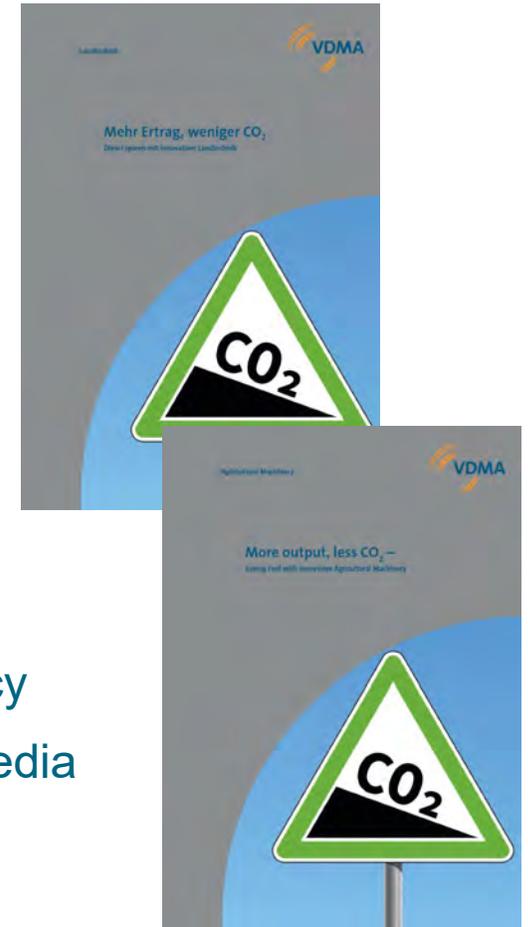


- » **Five working groups** – thematically focused
 - Technology
 - Export
 - Press and advertising
 - Customer service
 - Spare parts

- » **Six Technical Committees** – precisely standardized
 - Tractors
 - Soil cultivation, seed and plant care
 - Harvest recovery, processing and preparation
 - Transport technology
 - Professional area and environmental maintenance technology
 - Electronics

Political representation of interests – all target groups in view

- » Continuous dialog with political decision-makers
 - National and international
 - Parliamentary evenings with prominent federal politicians
 - Background discussions at EU level
 - Conferences outside Europe
- » Co-design of technical and economic policy legislation
- » Campaigns for open markets and free trade agreements
- » Campaigning for alternative fuels and drive systems
- » Documentation of the ag machinery industry's contribution to climate policy
- » Placement of messages relevant to economic policy in opinion-leading media



Technology and standardization – expertise for the future



- » On behalf of DIN, the VDMA is responsible for all standardization activities in the mechanical and plant engineering sector
- » Standardization is seen as a strategic instrument of corporate management
- » Leading support of essential agricultural machinery standardization secretariats on CEN and ISO level by the standards group for agricultural machinery (NLA) in the fields of:
 - Tractors
 - Self-propelled agricultural machinery
 - Safety
 - Electronics

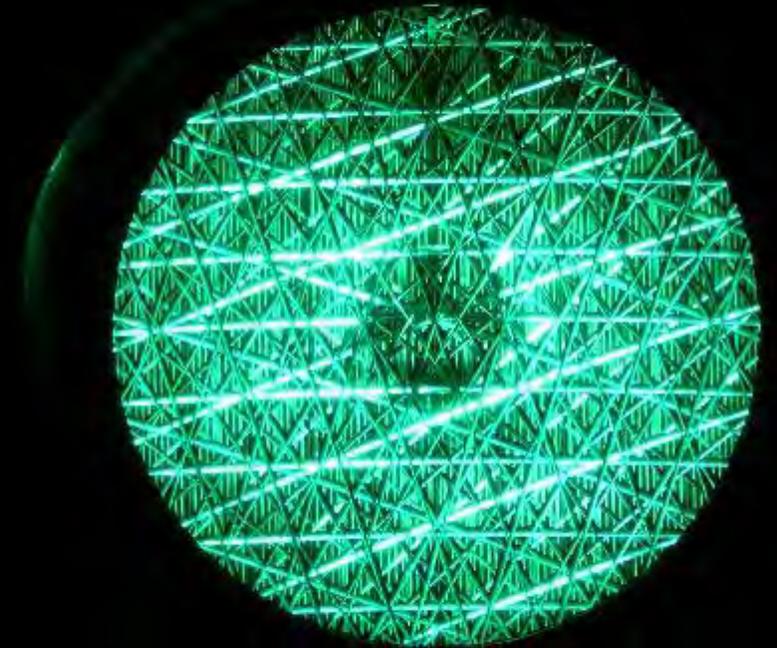
Standardization – expertise for the future



- » Standardization
 - Occupational, traffic and environmental safety
 - Electronics and networking
 - Interfaces between tractor, implement and farm
 - Functional safety
 - Autonomous machines
- » ISO Secretariats
 - Tractors, safety, electronics
 - Research projects
 - CO2 reduction through process optimization
- » Other topics
 - Certification of processes and machines
 - Future drive systems in agricultural machinery

Technology and standardization – expertise for the future

- » Road traffic
 - German Road Traffic Licensing Regulations (StVZO)
 - (EU) 167/2013 Type approval Ag Machinery
 - 2007/46/EG resp. (EU) 2018/858 Type approval Motor Vehicles
 - Exhaust gas legislation
 - Standardization, e. g. brakes, steering, connecting devices, lighting and field of vision



Standardization – expertise for the future

- » Occupational Safety
 - 2006/42/EC Machinery
 - 89/391/EG Workplace
 - 97/23/EC Pressure equipment
 - 2006/95/EC Low Voltage
 - Standardization: 48 CEN & 41 ISO standards

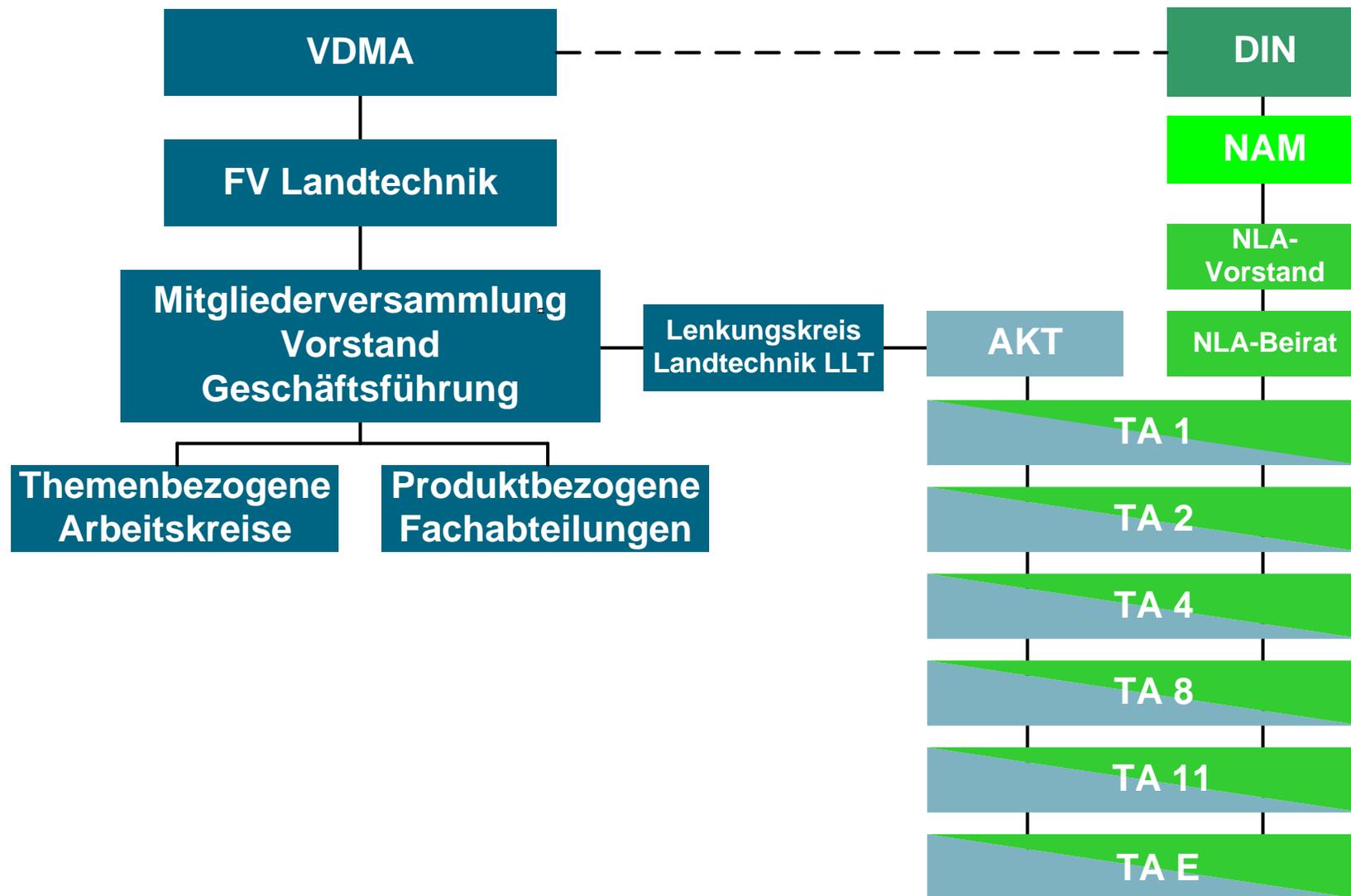


Technology and standardization – expertise for the future

- » Digitization (ISO 11783)
- » Functional safety (ISO 25119)
- » Autonomous machines (ISO 18497)
- » GPS applications (ISO 12188)
- » High-voltage interface (ISO 23316)
- » EMC (ISO 14982) diagnostics
- » Digitally networked processes and value chains
- » Agricultural Industry Electronics Foundation (AEF)



Relation between VDMA and DIN



EU Type-Approval for Agricultural Vehicles - Planned “3rd batch of amendments” - Industry requests and proposals (selection)

- » Adopt UNECE R 147 (connecting devices) as an alternative
- » Update ISO standards on coupling devices
- » Underrun protection (width)
- » Height of loading platform 1.5 m → 1.8 m
- » Align of Annex XII with UNECE R 86 (lighting attachments), direct application of R 86 in EU type-approval, editorial alignment with R 148, 149 and 150 (headlamps, lights, signalling devices)
- » Eliminate "overlap" with Annex I of the Machinery Directive for R and S
- » Ensure equivalence of hydraulic and pneumatic brake regulations, ensure compatibility "old"/"new".

EU Type-Approval for Agricultural Vehicles - Planned “3rd batch of amendments” - State of Play

- » No new state of play
- » Commission proposal: CEMA amendment proposals for 3rd series of amendments prioritised and only most urgent amendments to be made (remainder to be discussed in revision of Regulation (EU) 167/2013 from approx. 2026 onwards)
- » Commission has no longer significant staff capacities available for (EU) 167/2013 etc. from summer onwards
- » Processing of the third amendment series currently in question overall
- » No decisions at 115th meeting of WGAT (October 2022); 116th WGAT postponed to 2024
- » EP Elections June 2024 → No actions expected before

EU Type-Approval for Self-propelled Machines (NRMM)



Structure

- » Simplified type-approval procedure based on the relevant type-approval procedures for vehicles M, N, O, T, C, R, S and L.
- » Complementing existing harmonisation regulations such as the Machinery Directive, EMC Directive, Exhaust Emissions Directive NRMM, etc.

Content/scope of the proposed regulation

- » Technical and administrative requirements
- » Procedures for EU type-approval and placing on the market
- » Rules for market surveillance

EU Type-Approval for Self-propelled Machines (NRMM)



Definition

- » “non-road mobile machinery” means any self-propelled mobile machinery, falling within the scope of Directive 2006/42/EC, that is designed or constructed with the purpose to perform work

Not in scope

- » non-road mobile machinery with a maximum design speed exceeding 40 km/h
- » non-road mobile machinery equipped with more than three seating positions, including the driver’s seating position
- » machinery intended for the transport of one or more persons or animals, or any goods other than required for the performance of work
- » Vehicles falling within the scope of Regulation (EU) No 167/2013, Regulation (EU) No 168/2013 or Regulation (EU) 2018/858;

EU Type-Approval for Self-propelled Machines (NRMM)



Not in scope (continued)

- » non-road mobile machinery that was placed on the market, registered or entered into service before the date of application of this Regulation
- » individual approvals
- » small series (not more than 50 units placed on the market per year and Member State)
- » Towed machinery

Technical Requirements (Article 15)

- » (a) vehicle structure integrity;
- » (b) maximum design speed, speed governor, speed limitation devices and speedometer;
- » (c) braking devices;
- » (d) steering;

EU Type-Approval for Self-propelled Machines (NRMM)



Technical Requirements (Article 15; continued)

- » (e) field of vision;
- » (f) windscreen wipers;
- » (g) glazing and its installation;
- » (h) indirect vision devices;
- » (i) lighting and lighting installations;
- » (j) vehicle exterior and accessories in on road position, including working equipment and swinging structure;
- » (k) audible warning devices and their installation;
- » (l) heating systems, defrost and demist;
- » (m) registration plate spaces;

EU Type-Approval for Self-propelled Machines (NRMM)



Technical Requirements (Article 15; continued)

- » (n) statutory plate and marking;
- » (o) dimensions;
 - Member States may allow larger dimensions nationally
- » (p) masses, including maximum on-road laden mass;
 - Member States may allow higher masses nationally
- » (q) fuel tanks;
- » (r) tyres;
- » (s) reverse gear;
- » (t) tracks;

EU Type-Approval for Self-propelled Machines (NRMM)



Technical Requirements (Article 15; continued)

- » (u) mechanical couplings;
- » (v) driver and other occupants' seating positions and restrain systems;
- » (w) operator's manual for road use;
- » (x) operator's controls for on-road use;
- » (y) on-road information, warnings and markings.

Commission may adopt delegated acts laying down specific rules on these requirements.

- » Currently one delegated act planned but not yet in preparation

EU Type-Approval for Self-propelled Machines (NRMM)



Establishing a "forum" for the exchange of information on implementation

- » Representatives of the Member States and their approval and market surveillance authorities
- » If applicable, representatives of industry as observers

Report from the Commission after not more than 60 months from the date of application, based on a consultation of relevant stakeholders.

Transitional periods

- » Application optional three years (36 months) after entry into force (20 days after publication in the Official Journal of the EU)
- » Application mandatory eight years after date of application

EU Product Safety Directive



Not really relevant when applying harmonized regulations or national legislation

Import from UK



Transitional period postponed to 2027

Presently no need for action

Informationssystem Typgenehmigungsverfahren

Konsequenzen aus dem BREXIT für das Typgenehmigungsverfahren

Frage- oder Problemstellung:

Der beabsichtigte Austritt des Vereinigten Königreichs am 29. März 2019 hat sowohl Konsequenzen für Typgenehmigungen, die von der britischen Genehmigungsbehörde VCA auf Basis von Richtlinien und Verordnungen der Europäischen Union¹ erteilt wurden als auch auf nationale Typgenehmigungen nach der Straßenverkehrs-Zulassungs-Ordnung (StVZO), die Herstellern mit Sitz im Vereinigten Königreich erteilt wurden. Es ergeben sich somit folgende Fragen:

1. Wie erfolgt die Übertragung von e11- in e1-Typgenehmigungen (Unions-Typgenehmigungen) angesichts des Austritts des Vereinigten Königreichs?
2. Welche Konsequenzen hat der Austritt des Vereinigten Königreichs auf nationale Typgenehmigungen nach StVZO, deren Inhaber ihren Sitz im Vereinigten Königreich haben?

Ergebnis:

Zu 1.:

Die Vorgaben für die Übertragung ergeben sich im Wesentlichen aus der Verordnung (EU) 2019/26 zur Ergänzung der Unionsvorschriften über die Typgenehmigung angesichts des Austritts des Vereinigten Königreichs aus der Union sowie Festlegungen des KBA.

- Die Verordnung gilt nur für Neugenehmigungen auf Basis von Typgenehmigungen des Vereinigten Königreichs (e11). Die Erteilung einer Unions-Typgenehmigung ist bis zu dem Tag, an dem die Unions-Vorschriften über die Typgenehmigung aufhören, für das Vereinigte Königreich und im Vereinigten Königreich zu gelten (im weiteren Text Austrittsdatum), möglich. Zur Erteilung dieser Genehmigung müssen die Antragsunterlagen vollständig vorliegen.
- Ab dem Austrittsdatum sind alle e11-Typgenehmigungen ungültig.
- Die Unions-Typgenehmigung wird am Tag der Erteilung oder zu einem darin festgelegten späteren Zeitpunkt wirksam (Effective date). Die alte Typgenehmigung wird hierdurch automatisch am Vortag ungültig.
- Der Antragsteller liefert dem KBA eine Liste aller nach dem 1. Januar 2008 erteilten e11-Typgenehmigungen. In der Liste werden die Typgenehmigungen wie folgt katalogisiert:
 - ungültige Typgenehmigungen und Typgenehmigungen, die nicht in eine Unions-Typgenehmigung überführt werden sollen. Für jede dieser Typgenehmigungen muss die Unions-Typgenehmigungshörde genannt werden, die die Verpflichtungen der Typgenehmigungsbehörde des Vereinigten Königreichs übernehmen soll.
 - Des Weiteren sollen die Typgenehmigungen aufgeführt werden, die in Unions-Typgenehmigungen übertragen werden sollen. Die Unions-Typgenehmigungsbehörde ist je Typgenehmigung zu benennen.

Vor Erteilung einer Unions-Typgenehmigung muss das KBA dieser Liste zustimmen.

¹ (nicht betroffen sind E11-Typgenehmigungen nach UN-Regelungen)

Informationssystem Typgenehmigungsverfahren

- Es wird eine neue Typgenehmigungsnummer vergeben. Das KBA akzeptiert eine Doppelkennzeichnung (e11- und e1-Typgenehmigungsnummer).
- Die Typbezeichnung kann beibehalten werden. Empfohlen wird, die Typbezeichnung beizubehalten.
- Es kann nach einem älteren Vorschriftenstand genehmigt werden, wenn nach diesem das Inverkehrbringen noch zulässig ist. Die Genehmigungsnummer des KBA wird diesen Vorschriftenstand wiedergeben.
- Der Prüfbericht des in e11 benannten Technischen Dienstes (TD) wird für die „Ersterteilung“ durch das KBA anerkannt (keine Benennung durch das KBA erforderlich). Prüfungen wird das KBA bei dieser „Ersterteilung“ nur fordern, wenn dazu Anlass besteht. Diese Prüfungen müssen dann durch einen beim KBA benannten TD durchgeführt werden.
- Die „Ersterteilung“ wird mit der Nebenbestimmung erfolgen, dass zur nächsten Erweiterung ein vom KBA benannter TD hinzuzuziehen ist. Dieser Zusatz entfällt, wenn bereits im Rahmen der „Ersterteilung“ ein vom KBA benannter TD den Prüfbericht erstellt hat oder der e11-TD zum Zeitpunkt der damaligen Prüfberichtserstellung bereits beim KBA benannt war.
- Wünscht der Hersteller die Übernahme von Prüfergebnissen des e11-TD durch den vom KBA benannten TD, gelten die Benennungsregeln.
- Bei Änderungen der zu übertragenden e11-Typgenehmigung muss ein beim KBA benannter Technischer Dienst einen Prüfbericht erstellen. Die Übertragung und Erweiterung kann in einem Schritt erfolgen. Ggf. ist das IST Nr. 06-15 zu beachten.
- Die vom Antragsteller abzugebende Erklärung gemäß Artikel 6 Nr. 2 BREXIT-Beschluss sollte wie folgt lauten:
Wir, < Name des Antragstellers >, stimmen zu, dass wir alle Kosten abdecken, die dem Kraftfahrt-Bundesamt aufgrund der Ausübung ihrer Befugnisse und der Erfüllung seiner Verpflichtungen in Bezug auf das betreffende Genehmigungsobjekt entstehen.
- Wenn der Hersteller bisher nicht beim KBA bekannt ist, muss vor Umschreibung der e11-Typgenehmigungen vom KBA die Anfangsbewertung gemäß dem Merkblatt zur Anfangsbewertung (MAB) positiv abgeschlossen sein. Folgende Unterlagen sind vorzulegen:
 - Nachweis über die Rechtsidentität (beglaubigtes Registrierungsdokument)
 - Selbstauskunft und (falls erforderlich) Herstellervereinbarungen
 - Ein vom VCA ausgestelltes Statement of Compliance (SoC) als QM-Nachweis
- Bei Antragstellung ist die bisherige Genehmigungsdokumentation komplett einzureichen.
- Systemgenehmigungen dürfen keine e11-Bauteilgenehmigungen enthalten; Gesamtfahrzeuggenehmigungen dürfen keine e11-Systemgenehmigungen enthalten.
- Im Typgenehmigungsbogen der Unions-Typgenehmigung wird unter Bemerkungen die vorherige Typgenehmigungsnummer mit Datum oder das Typgenehmigungszeichen (e11) genannt.

Zu 2.:

Durch den Austritt des Vereinigten Königreichs aus der Europäischen Union werden nationale Typgenehmigungen nach StVZO, die einem Genehmigungsinhaber mit Sitz im Vereinigten Königreich erteilt wurden, mit dem Austrittsdatum ungültig.

Wie auch in der Verordnung (EU) 2019/26 zur Ergänzung der Unionsvorschriften über die Typgenehmigung angesichts des Austritts des Vereinigten Königreichs aus der Union beschrieben, sollen hiermit Festlegungen getroffen werden, wie nationale Typgenehmigungen übertragen werden können.

Eine Umschreibung auf einen neuen Genehmigungsinhaber ist bis zum Austrittsdatum möglich.

Informationssystem Typgenehmigungsverfahren

Unter folgenden Voraussetzungen erfolgt diese Umschreibung der nationalen Typgenehmigung im Nachtragsverfahren (Nachtrag ohne Gutachten):

- Das Genehmigungsobjekt wird weiterhin unverändert gefertigt und entspricht der Typgenehmigung.
- Der bisherige Genehmigungsinhaber stellt einen Antrag auf Umschreibung der Typgenehmigungen auf den neuen Genehmigungsinhaber. Er muss folgende Abtretungserklärung vorlegen:
Wir, die Firma A, stellen hiermit Antrag auf Umschreibung der Typgenehmigung(en) auf die Firma B. Wir, die Firma A, treten die Rechte an den Dokumentationen, die im Zusammenhang mit Typgenehmigungen stehen, zur weiteren Nutzung an die Firma B ab. Der Übertragung dieser Genehmigungen auf die Firma B als neuen Genehmigungsinhaber wird zugestimmt. Eine Liste der von dieser Erklärung umfassten Typgenehmigungen ist beigelegt.
- Der neue Genehmigungsinhaber muss seinen Sitz innerhalb des EWR haben, anfangsbewertet sein (siehe MAB) und folgende Erklärung abgeben:
Wir, offizieller Firmenname, treten mit Wirkung auch für die Vergangenheit in die mit den Typgenehmigungen verbundenen Pflichten der Firma < offizieller Firmenname des bisherigen Genehmigungsinhabers > ein. Eine Liste der von dieser Erklärung umfassten Typgenehmigungen ist der Abtretungserklärung beigelegt. Wir werden zum Produktverantwortlichen für Maßnahmen nach dem Produktsicherheitsgesetz (ProdSG). Zudem treten wir im Zuge der beantragten Genehmigungsübertragung auch in sämtliche Pflichten als Produktverantwortlicher für bereits in Verkehr gebrachte sowie für produzierte, noch nicht in Verkehr gebrachte Genehmigungsobjekte (vor Genehmigungsübertragung) ein.

Unter folgenden Bedingungen kann für das Genehmigungsobjekt nach dem Austrittsdatum eine neue nationale Typgenehmigung auf Basis der bisherigen Prüfungen sowie der Genehmigungsnummer erteilt werden:

- Das Genehmigungsobjekt wird unverändert gefertigt.
- Der neue Genehmigungsinhaber muss seinen Sitz innerhalb des EWR haben und anfangsbewertet sein (siehe MAB).
- Der alte Genehmigungsinhaber hat dem KBA gegenüber folgende Erklärung abgegeben:
Wir, < offizieller Name des ursprünglichen Genehmigungsinhabers >, treten die Rechte an den Dokumentationen, die im Zusammenhang mit der Typgenehmigung stehen, zur weiteren Nutzung an < offizieller Name des neuen Antragstellers > ab. Der Verwendung der Genehmigungsnummer/des Genehmigungszeichens wird zugestimmt. Eine Liste der von dieser Erklärung umfassten Typgenehmigungen ist beigelegt.
- Wenn die Genehmigungsnummer/das Genehmigungszeichen durch den neuen Antragsteller weiterhin verwendet werden soll, muss anhand weiterer Kennzeichnungen (z. B. Teilenummer, Fertigungsmonat, ...) am Genehmigungsobjekt eindeutig identifizierbar sein, zu welchem Zeitpunkt bzw. in welcher Verantwortung das Teil gefertigt wurde.
- Der TD bestätigt die Erfüllung des aktuellen Vorschriftenstandes.
- Trotz der Verwendung der alten Genehmigungsnummer handelt es sich rechtlich um eine neue Typgenehmigung.

Flensburg, 04.03.2019
Petra Baldenegger

Informationssystem Typgenehmigungsverfahren

Zulassungsfähigkeit von Fahrzeugen nach dem BREXIT

Frage- oder Problemstellung:

Durch den beantragten Austritt des Vereinigten Königreichs aus der Union, ergeben sich Fragen zur Zulassungsfähigkeit von Fahrzeugen, die durch die Typgenehmigungsbehörde des Vereinigten Königreichs genehmigt wurden.

Im Folgenden sollen fünf Fallkonstellationen im Detail betrachtet werden:

Fallkonstellation 1:

Das Fahrzeug wurde vor dem Austrittsdatum produziert und besitzt ein e11-COC. Das Fahrzeug ist nach dem Austrittsdatum noch nicht zugelassen worden.

Fallkonstellation 2:

Das Fahrzeug wurde vor dem Austrittsdatum produziert und besitzt ein e11-COC. Vor dem Austrittsdatum wurde die e11-Typgenehmigung in eine Unions-Typgenehmigung¹ überführt. Das Fahrzeug ist nach dem Austrittsdatum noch nicht zugelassen worden.

Fallkonstellation 3:

Das Fahrzeug wurde vor dem Austrittsdatum produziert und besitzt ein e11-COC. Das Fahrzeug ist nach dem Austrittsdatum noch nicht zugelassen worden, hat vor dem Austrittsdatum aber aus technischen Gründen (Artikel 27 Absatz 3 der Richtlinie 2007/46/EG) eine Ausnahme für Fahrzeuge aus auslaufenden Serien in Deutschland erhalten.

Fallkonstellation 4:

Das Fahrzeug wurde vor dem Austrittsdatum produziert und besitzt ein e11-COC mit oder ohne einem Anhang zur Übereinstimmungsbescheinigung² (im Folgenden als Beiblatt bezeichnet). Das Fahrzeug ist bis zum 31.08.2019 (Beispiel: mit Emissionsbuchstaben AD) noch nicht zugelassen worden. Das Fahrzeug erfüllt die ab dem 01.09.2019 für die Erstzulassung notwendigen Anforderungen hinsichtlich der Emissionen nicht.

Fallkonstellation 5:

Das Fahrzeug ist zulassungsfrei, wurde vor dem Austrittsdatum produziert und besitzt eine e11-Fahrzeuggesamtgenehmigung, die nicht vor dem Austrittsdatum in eine Unions-Typgenehmigung überführt wurde.

¹ VERORDNUNG (EU) 2019/26, Art. 3, Punkt 3.

² VERORDNUNG (EU) 2019/26, Art. 5, Punkt 6.

Ergebnis:

Fallkonstellation 1:

Das e11-COC ist weiterhin gültig. Bis zum Ungültigwerden eines Rechtsaktes aus Anhang IV oder Artikels der Richtlinie 2007/46/EG ist das Fahrzeug uneingeschränkt zulassungsfähig. Das Fahrzeug muss vor dem Austrittsdatum auf dem Markt der EU 27 bereitgestellt worden sein.

Fallkonstellation 2:

Dem e11-COC wird vom Hersteller ein Beiblatt gemäß Artikel 5, Absatz 6 vorletzter Absatz der VO (EU) 2019/26 beigegeben. Bis zum Ungültigwerden eines Rechtsaktes aus Anhang IV oder Artikels der Richtlinie 2007/46/EG ist das Fahrzeug uneingeschränkt zulassungsfähig. Das Fahrzeug muss vor dem Austrittsdatum auf dem Markt der EU 27 bereitgestellt worden sein.

Fallkonstellation 3:

Das Fahrzeug ist unabhängig vom Austrittsdatum bis zum Ablauf der Frist der Ausnahmegenehmigung (12 bzw. 18 Monate) erstzulassungsfähig. Das Fahrzeug muss sich vor dem Termin der Erteilung der Ausnahmegenehmigung in der EU 28 befinden und vor dem Austrittsdatum auf dem Markt der EU 27 bereitgestellt worden sein.

Fallkonstellation 4:

Das Fahrzeug ist erstzulassungsfähig, wenn hinsichtlich des Emissionsbuchstabens eine Ausnahme für Fahrzeuge aus auslaufenden Serien beantragt wird. Die Ausnahmegenehmigung ist 12 bzw. 18 Monate gültig. Das Fahrzeug muss vor dem Austrittsdatum auf dem Markt der EU 27 bereitgestellt worden sein.

Fallkonstellation 5:

Das Fahrzeug muss vor dem Austrittsdatum auf dem Markt der EU 27 bereitgestellt worden sein, damit es rechtsgültig in den Verkehr gebracht wurde.

Flensburg, 06.05.2019
400-27/001#021
Leif Erik Meyer-Truelsen

Regulation (EU) No 167/2013

How to work with regulation text's

Regulation (EU) No 167/2013

- Overview about the Regulations
- How to get them
- Creating information folder
- Annex I CR (EU) No 2015/208 and 1322/2014
- Requirements on lighting installations, Annex XII CR (EU) No 2015/208
- Requirements on rear protective structures, Annex XXVI CR (EU) No 2015/208

Overview about the Regulations

Overview about the Regulations

Working titel

Basic titel

Latest amendment

Framework Regulation
CR (EU) No 167/2013

Framework Regulation
CR (EU) No 2019/519

Delegated Regulation
RVCR
REPPR
RVBR
RVFSR

Delegated Regulation
CR (EU) No 1322/2014
CR (EU) No 2015/96
CR (EU) No 2015/68
CR (EU) No 2015/208

Delegated Regulation
CR (EU) No 2018/830
CR (EU) No 2018/985
CR (EU) No 2018/828
CR (EU) No 2020/540

Implementing Regulation
RAR

Implementing Regulation
CR (EU) No 2015/504

Implementing Regulation
CR (EU) No 2018/986

Overview about the Regulations

Requirements according to CR (EU) No 167/2013

ANNEX I

LIST OF REQUIREMENTS FOR THE PURPOSES OF VEHICLE EU TYPE-APPROVAL

Nr.	Article	Subject	Regulatory act reference	Motor vehicles	Vehicle categories																	
					T1a	T1b	T2a	T2b	T3a	T3b	T 4.1a	T4.1b (+)	T 4.2a	T 4.2b (+)	T 4.3a	T4.3b	Ca	Cb (+)	Ra	Rb	Sa	Sb
1	17(2)(a)	Vehicle structure integrity	RVFSR		X	X	X	X	X	X	X	X	X	X	X	X	I	I	X	X	X	X
2	17(2)(b)	Maximum design speed, speed governor and speed limitation devices	RVFSR		X	X	X	X	X	X	X	X	X	X	X	X	I	I	NA	NA	NA	NA
3	17(2)(b)	Braking devices and trailer brake coupling	RVBR		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	17(2)(b)	Steering for fast tractors	RVFSR (based on ECE 79 REV [new number])	Y	NA	X	NA	X	NA	X	NA	X	NA	X	NA	X	NA	I	NA	NA	NA	NA
5	17(2)(b)	Steering	RVFSR	Y	X	NA	X	NA	X	NA	X	NA	X	NA	X	NA	I	NA	NA	NA	NA	NA
6	17(2)(b)	Speedometer	►M3 RVFSR ◄		X	X	X	X	X	X	X	X	X	X	X	X	X	X	NA	NA	NA	NA
7	17(2)(c)	Field of vision and windscreen wipers	RVFSR (based on ECE 71 REV. 1)	Y	X	X	X	X	X	X	X	X	X	X	X	X	I	I	NA	NA	NA	NA

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How to get them

How to get them



<https://eur-lex.europa.eu/homepage.html?locale=en>

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2013 167

Regulation

Search



Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles Text with EEA relevance
OJ L 60, 2.3.2013, p. 1–51 (BG, ES, CS, DA, DE, ET, EL, EN, FR, GA, IT, LV, LT, HU, MT, NL, PL, PT, RO, SK, SL, FI, SV)
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Form: Regulation

Author: European Parliament, Council of the European Union

Date of document: 05/02/2013



Languages and formats available

	BG	ES	CS	DA	DE	ET	EL	EN	FR	GA	HR	IT	LV	LT	HU	MT	NL	PL	PT	RO	SK	SL	FI	SV
HTML																								
PDF																								

Creating information folder

Creating information folder

CR (EU) No 2015/504

- The information folder is the collection of vehicle description documents
- Has to be created by the manufacturer
- Digital documents preferred
- Checked by technical service
- Send to authority by technical service



Creating information folder

CR (EU) No 2015/504 Annex I

Tractor / Trailer	a	a list of contents
	b	the information on the type-approval procedure chosen in accordance with Article 20(1) of Regulation (EU) No 167/2013, the template for which is set out in point 2 (information folder sheet)
	c	the information document as set out in Part B of this Annex
	d	all relevant data, drawings, photographs and other information as required in the information document
	e	the manufacturer's certificate providing proof of compliance to the type-approval authority on access to vehicle on-board diagnostic (OBD) and to vehicle repair and maintenance information as referred to in Article 53(8) of Regulation (EU) No 167/2013 and set out in Annex II to this Regulation
	f	for tractors type-approved with machinery mounted on them and for R- and S-category vehicles, a document setting out the contents of the EC declaration of conformity in accordance with the national provisions implementing Directive 2006/42/EC of the European Parliament and of the Council, not necessarily including the serial number and the signature
	g	any additional information requested by the approval authority as part of the approval procedure
Tractor	h	the manufacturer's declaration on anti-tampering of powertrain and speed-limitation device as referred to in Article 17(2)(b) of Regulation (EU) No 167/2013 and in point 4.3.2 of Annex III to Commission Delegated Regulation (EU) 2015/208 (1) according to the model established in Appendix 24 to this Annex
	i	for vehicles equipped with (an) electrical/electronic device(s) which limit its propulsion performance, data and evidence to demonstrate that modification or disconnection of the device or its wiring system will not increase the propulsion performance
	j	for vehicles of categories T2, T3 and T4.3 equipped with foldable ROPS with an automatic locking system, a certificate of the manufacturer stating that the preliminary test has been done according to the test procedure set out in point 5.5. of Part B3 of Annex IX to Commission Delegated Regulation (EU) No 1322/2014 (2)

Annex I CR (EU) No 2015/208 and 1322/2014

Annex I CR (EU) No 2015/208 and 1322/2014

Annex I CR (EU) No 2015/208

List of applicable UNECE regulations

Regulation Number	Subject	Series of amendments	OJ Reference	Applicability
1	Lighting installation	Incorporating all valid text up to 02 series of amendments	OJ L 177, 10.7.2010, p. 1	T and C
3	Lighting, light-signalling devices and their light sources	Supplement 12 to the 02 series of amendments	OJ L 323, 6.12.2011, p. 1	T, C, R and S
4	Lighting, light-signalling devices and their light sources	Supplement 14 to the original version of the Regulation Supplement 15 to the original version of the Regulation	OJ L 31, 31.1.2009, p. 35 OJ L 4, 7.1.2012, p. 17	T, C, R and S
5	Lighting, light-signalling devices and their light sources	Incorporating all valid text up to 03 series of amendments	OJ L 162, 29.5.2014, p. 1	T and C



Annex I CR (EU) No 1322/2014

Application of UNECE regulations

UNECE regulation No	Subject	Series of amendments	OJ Reference	Applicability
14	Safety-belt anchorages, ISOFIX anchorages systems and ISOFIX top tether anchorages	Supplement 1 to the 07 series of amendments	OJ L 109, 28.4.2011, p. 1	T and C
16	Safety belts, restraint systems and child restraint systems	Supplement 1 to the 06 series of amendments	OJ L 233, 9.9.2011, p. 1	T and C
43	Safety glazing	Supplement 12 to the 00 series of amendments	OJ L 230, 31.8.2010, p. 119	T and C
60	Driver operated controls — identification of controls, tell-tales and indicators (moped/motorcycles)		OJ L 95, 31.3.2004, p. 10	T and C
79	Steering equipment	Supplement 3 to the 01 series of amendments and Corrigendum 20 January 2006	OJ L 137, 27.5.2008, p. 25	T and C

<https://unece.org/un-regulations-addenda-1958-agreement>

Requirements on lighting installations, annex XII CR (EU) No 2015/208

Requirements on lighting installations

Annex XII CR (EU) No 2015/208

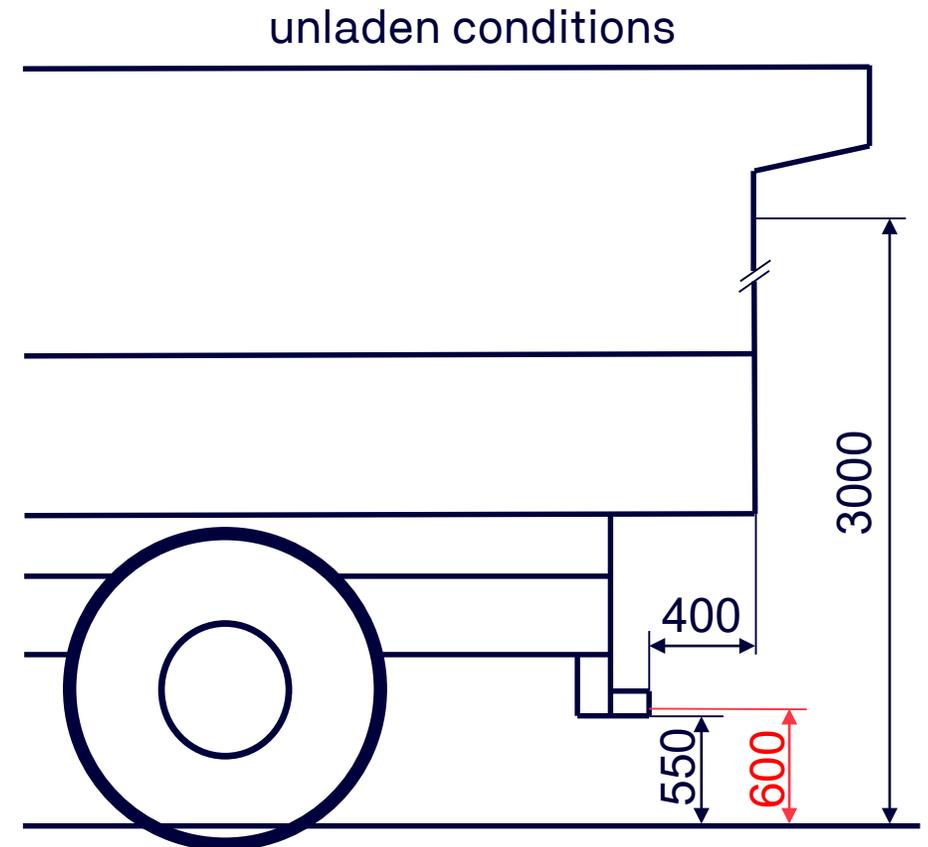
- construction of that annex:
 - definitions, test procedure for EU type-approval, approval, approval number and markings, general specifications, individual specification
- [Example CR \(EU\) No 2015/208](#)
- Use maximum dimensions of the regulation
- No detailed drawings needed
- [Example light annex for information folder](#)
- Working lamps without approval number

Requirements on rear protective structures, Annex XXVI CR (EU) No 2015/208

Requirements on rear protective structures

Annex XXVI CR (EU) No 2015/208

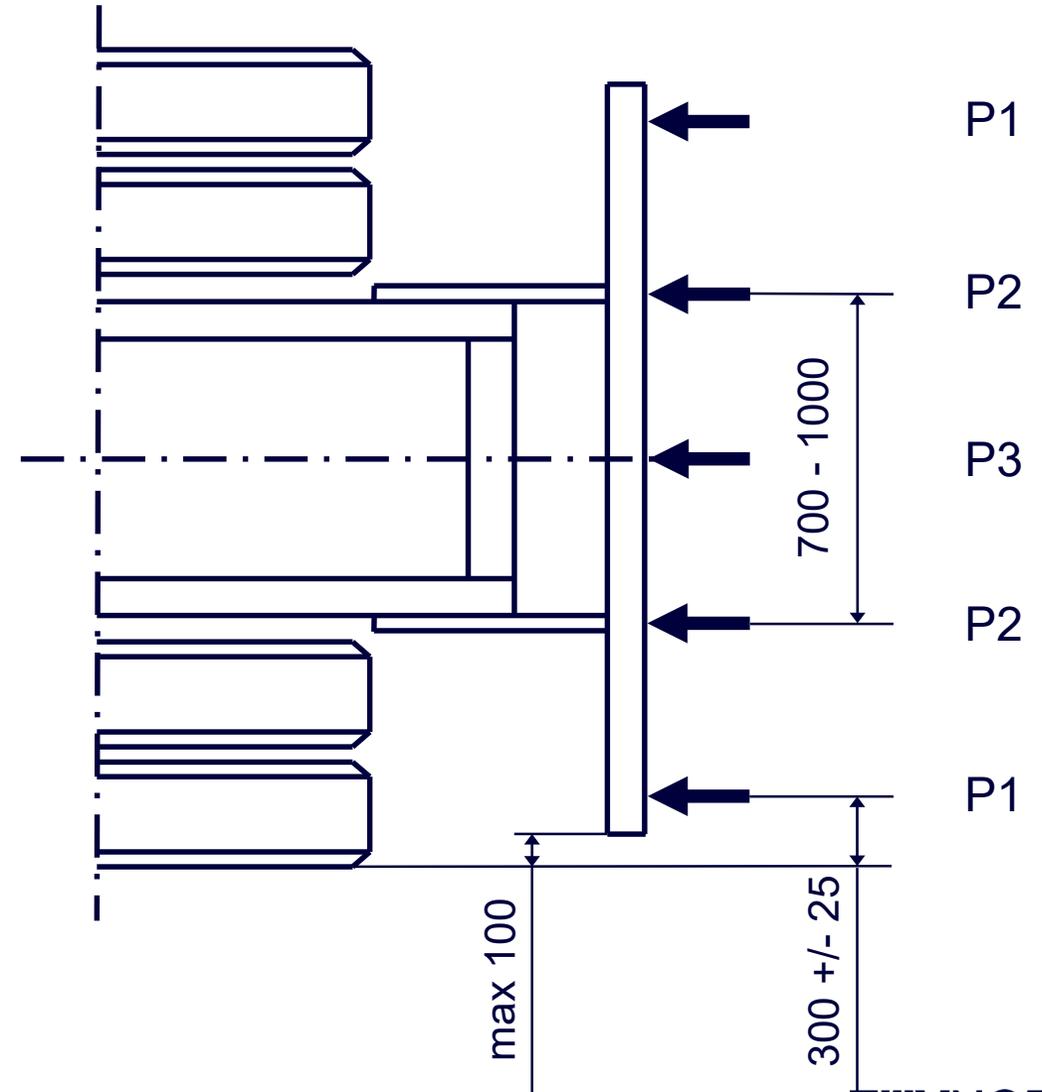
- required for vehicles class R
- Device generally a cross-member with linking components to chassis side members
- Height of cross-member minimum 10 cm
- For moveable devices, operator force max. 40 daN
- Exemptions theoretical possible if the rear protective structure is incompatible with their rear fitted operational devices



Requirements on rear protective structures

Annex XXVI CR (EU) No 2015/208

- Test points P1 and P3
 - 25% of maximum technically permissible mass but not exceeding 50 kN
- Test point P2
 - 50% of maximum technically permissible mass but not exceeding 100 kN
- Width of the device maximum 2,55 m → machines wider than 2,75 m not fulfill 100 mm dimension to outermost points of the wheels



Questions?

René Kubbutat

MIFMTAT-H

T.: +49 511 998-62644

M.: +49 160 888 1599

E.: rkubbutat@tuev-nord.de