

**Kraftfahrt-  
Bundesamt**



# / Automated Valet Parking (AVP)

Legal Framework and National Approval

## Agenda

- **Legal Framework**
- **National Approval**
  - **General Information**
  - **Details and Scope**
  - **Drop-Off / Pick-Up Process**
  - **Internal Preparation**
  - **Assessment Process**

## Legal Framework

- **July 2021:** Entry into force of the legislation amending the existing **Road Traffic** and Compulsory Insurance Acts (Act on Autonomous Driving)
  
- **July 2022:** Entry into force of the **Ordinance** regarding the Act on Autonomous Driving, enabling the ...
  - ... operation of automated/autonomous vehicles,
  - ... ***subsequent activation of automated/autonomous driving functions in dual-mode vehicles post-registration,***
  - ... testing of automated/autonomous driving functions.

## Legal Framework

### Section 1h Road Traffic Act

(Subsequent activation of automated and autonomous driving functions)

(1) If (...) autonomous driving functions (...) are installed in a motor vehicle, the issuance of an approval for the operation of this motor vehicle (...) **shall only be permitted if it can be ruled out that the deactivated (...) autonomous driving functions will interfere with the approved systems.**

## Legal Framework

### Section 1h Road Traffic Act

(Subsequent activation of automated and autonomous driving functions)

(2) The activation of an (...) autonomous driving function (...) **shall only be permitted on the basis of a special approval** issued by the Federal Motor Transport Authority. (...) The Federal Motor Transport Authority **shall publish the technical requirements that have to be complied with in this respect.**

Federal Motor Transport Authority = KBA

## Legal Framework

### Section 4 para. 6 Ordinance

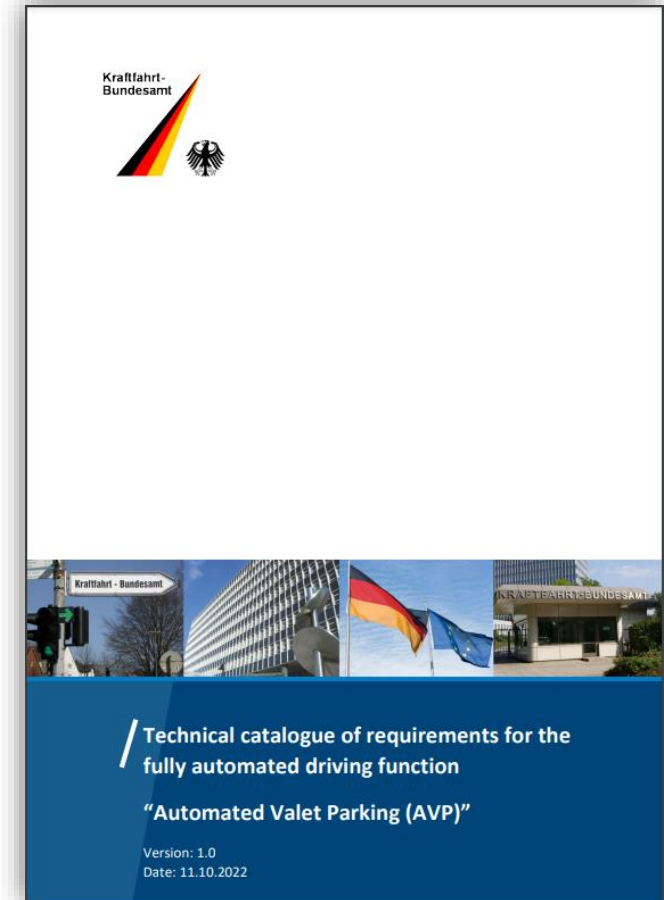
(6) The national operating permit for the **subsequent activation** of automated or autonomous driving functions is issued by the Federal Motor Transport Authority **provided that the technical requirements** laid down by the Federal Motor Transport Authority **are met**.

- Enables the KBA to approve an AVP system if it complies with the technical requirements published by the KBA.

# Kraftfahrt-Bundesamt / Type-Approval

## National Approval / General Information

The Technical Requirements Catalogue (TRC) for **AVP** has been released on **October 17, 2022** by the KBA.



Source: [https://www.kba.de/dl\\_anforderungskatalog\\_AVP\\_en.pdf](https://www.kba.de/dl_anforderungskatalog_AVP_en.pdf)

# Kraftfahrt-Bundesamt / Type-Approval

## National Approval / General Information

On the **November 18, 2022** the KBA granted the **first national approval** for the **autonomous** driving function **Automated Valet Parking (AVP)** in **dual-mode** and **already registered** vehicles.



**Kraftfahrt-Bundesamt**  
DE-24932 Flensburg

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**Genehmigung der nachträglichen Aktivierung einer automatisierten oder autonomen Fahrfunktion**  
**Approval of a subsequent activation of an automated or fully automated driving function**

ausgestellt von:  
**Kraftfahrt-Bundesamt (KBA)**

nach § 1h des „Straßenverkehrsgesetzes (StVG)“ in Verbindung mit § 4 (6) der „Verordnung zur Genehmigung und zum Betrieb von Kraftfahrzeugen mit autonomer Fahrfunktion in festgelegten Betriebsbereichen (Autonome-Fahrzeuge-Genehmigungs- und -Betriebs-Verordnung – AFGBV)“

**Automatisiertes / autonomes fahrerloses Park- und Manövriersystem (AVP)**

issued by:  
**Kraftfahrt-Bundesamt (KBA)**

according to § 1h of „Straßenverkehrsgesetz (StVG)“ in conjunction with § 4 (6) of „Verordnung zur Genehmigung und zum Betrieb von Kraftfahrzeugen mit autonomer Fahrfunktion in festgelegten Betriebsbereichen (Autonome-Fahrzeuge-Genehmigungs- und -Betriebs-Verordnung – AFGBV)“

**Automated Valet Parking (AVP)**

Stand des KBA-Anforderungskataloges: **11.10.2022**  
Status of KBA catalogue of requirements:

Genehmigungsnummer: **NAF00001\*00**  
Approval number:



# Kraftfahrt-Bundesamt / Type-Approval

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## National Approval / Details & Scope

- **Market:** Germany only
- **Parking area(s):** currently limited to the parking garage P6 at Stuttgart Airport
  - Further roll-out for other car lines and parking facilities requires extension of the national approval.
- **Type:** infrastructure based AVP
- **Max. speed:** 4 km/h
  - max. allowed by TRC: 10 km/h + 2 km/h tolerance

## National Approval / Details & Scope

- ODD:
  - Drop-Off / Pick-Up zone within the approved parking facility
  - Technical personal (AVP Operator) available
  - Mixed traffic in one direction
  - Weather conditions (e.g. no icy road or air temp. lower than - 20 °C)
  
- Multi-lateral concept between vehicle manufacturer, AVP infrastructure provider, parking facility owner, parking facility operator

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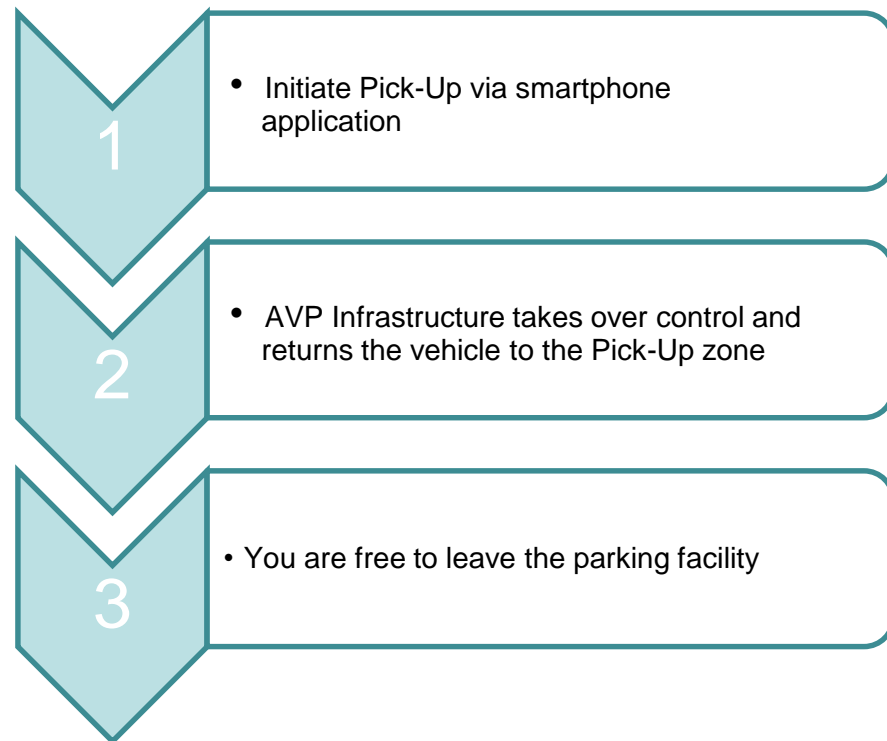
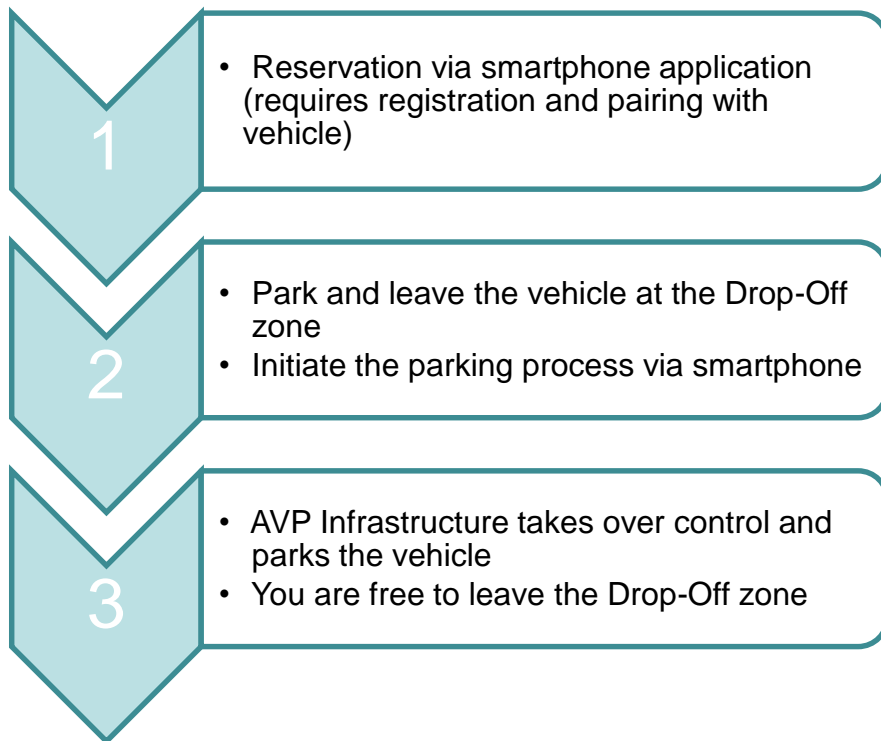
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## National Approval / Details & Scope

- Reporting provisions on a weekly basis with cumulative statistics about:
  - Ratio and total number of succeeded/aborted AVP drives
  - Number of Minimum-Risk-Maneuvers
  - Distance driven autonomously
  - ...
  
- Ad-hoc reporting, e.g. in case of accidents with VRUs

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## National Approval / Drop-Off & Pick-Up Processes



# Kraftfahrt-Bundesamt / Type-Approval

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## National Approval / Internal Preparation

- **04/2018:** First discussions with Vehicle Manufacturers about AVP
- **10/2019:** First workshop with BMDV, KBA, Technical Service and a Vehicle Manufacturer seeking for approval
- **02/2021:** Start of drafting process for a TRC lead by KBA based on Industry input/feedback and intensive discussions with the BMDV and the BSI (German national Cyber-Security agency)

# Kraftfahrt-Bundesamt / Type-Approval

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## National Approval / Internal Preparation

- **06/2022:** Presenting the draft version of the TRC within the German national working group on Level 4 systems for registered vehicles (including Authorities, Industry, Technical Services) and call for review
- **10/2022:** Official release of the TRC
- **11/2022:** First national approval

# Kraftfahrt-Bundesamt / Type-Approval

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## National Approval / Assessment Process

- **Practical tests** witnessed and performed by a Technical Service.
  
- **Additional tests** conducted **by KBA** with the focus on:
  - Collision Avoidance
  - Object and Event Detection & Response (OEDR)
  - Minimum-Risk-Maneuver (MRM)

# Kraftfahrt-Bundesamt / Type-Approval

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## National Approval / Assessment Process

- **Audits** have been performed by the
  - **Technical Service**, e.g. in regards to
    - Software-Update and Cyber-Security
    - Functional Safety
  - **KBA** in regards to
    - Cyber-Security together with the BSI
    - the initial assessment for Vehicle Manufacturers of Level 4 systems



Thank you very much  
for your attention!

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## Legal notice

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