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Trucking Security Requirements Guidance Document for users of TAPA Standards

Locking Systems Guidance **V2**

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TSR 2023



TRUCKING SECURITY REQUIREMENTS

TAPA^{EMEA}
Transported Asset Protection Association

Trucking Security Requirements

TSR 2023

APPENDIX A: HARD SIDED TRUCK
APPENDIX B: SOFT SIDED TRUCK
APPENDIX C: RIGID VANS/ FIXED BODY TRUCKS
APPENDIX D: SEA CONTAINER



1. Introduction

Welcome to the 2nd edition of the Locking Systems Guidance (LSG). TAPA has produced the LSG to provide helpful and supporting information on locking systems for users of the TAPA Trucking Security Requirements (TSR) Standard.

The idea for producing a TAPA guide on locking systems came from supply chain security professionals who are also members of TAPA. This guide covers many of the locking system options that are intended for road transport vehicles used in the supply chain industry.

TAPA has included images and information on products in the LSG. These products are available commercially and are considered examples of products that help protect vehicles and their cargoes, other products are available. TAPA does not endorse any of the products included in this document. TAPA cannot specify which product is appropriate for a TAPA TSR security level.

The purpose of this document is to:

- Provide additional detailed information on locking systems solutions not covered in the TSR.
- Provide users with locking systems categories that will help in selection and identification of suitable products.
- Provide suppliers examples of locking systems and their intended use.

This document will be reviewed and updated as necessary, providing TSR users with up-to-date information on locking systems. The latest version will be available to download from the standards section of the TAPA website.

2. About TAPA

Cargo crime is one of the biggest supply chain challenges for manufacturers of valuable, high-risk products and their logistics service providers.

The threat is no longer only from opportunist criminals. Today, organized crime rings are operating globally and using increasingly sophisticated attacks on vehicles, premises, and personnel to achieve their aims.



TAPA is a unique forum that unites global manufacturers, logistics providers, freight carriers, law enforcement agencies, and other stakeholders with the common aim of reducing losses from international supply chains. TAPA's primary focus is theft prevention through the use of real-time intelligence and the latest preventative measures.



TAPA's Mission

TAPA's mission is to help protect members' assets by minimizing cargo losses from the supply chain. TAPA achieves this through the development and application of global security standards, recognized industry practices, technology, education, benchmarking, regulatory collaboration, and the proactive identification of crime trends and supply chain security threats.

3. TSR Overview

Locking systems are an important layer for protecting road transport vehicles and their cargo. However, it should be clear that they are just one of many countermeasures to be considered when selecting deterrents and physical security measures to protect drivers, vehicles, and their cargo. Therefore, TAPA recommends to its members and the industry to adopt TAPA TSR as the standard for goods to be transported by road. Achieving TAPA TSR certification means that the operators' road transport operations have been approved by an accredited certification body (TSR 1-3) or by TAPA (TSR 3).

The table below is from TSR 2023 and shows the road transportation options or modules available for certification.

Table 1

Ref#	Module	Description	Level	Auditor Type
6.3.1	Hard-sided Truck	Truck + rigid body trailer	1, 2, or 3	IAB AA
6.3.2	Soft-sided Truck	Truck + curtain-sided trailer	3	IAB AA
6.3.3	Rigid Vans/Fixed Body Trucks	Van or truck with dedicated cargo compartment	1, 2, or 3	IAB AA
6.3.4	Sea Container	Road transport segment only	1, 2, or 3	IAB AA

The TSR requires a layered approach to protecting drivers, cargo, and vehicles and includes:

- Scalable security levels to assist the operator in the selection of risk mitigation countermeasures.
 - TSR Level 3 provides basic countermeasures and procedures that help to provide deterrents and protection for vehicles from criminal interest.
 - TSR Levels 1 and 2 provide more robust countermeasures and procedures and are more suited to protect high-value and/or vulnerable loads.
 - Where the vehicle is deemed to be at high risk the TSR can also be used for additional enhancements to cover electronic monitoring, security escorts, additional locking controls, IT/Cyber threat measures, and Cargo Compartment Alarm Devices.

TAPA TSR – Locking systems and the TSR standard.

TAPA is not a testing and compliance organisation and therefore cannot certify, confirm, or reject any security products that are used to help operators meet the requirements of TAPA security standards. Despite claims by some providers of locking systems, no locking systems have been certified by TAPA to meet TAPA standards.

There is another possibility of an external certified TAPA TSR 1 ready compartment, which is adapted solely to the physical requirements of the TSR. This is not a recommendation just a contingency of the potential solutions.

This does not imply that suitable locking systems are unavailable; it simply means TAPA cannot certify or endorse them.

Identifying locks that meet or exceed TAPA TSR requirements can sometimes be a challenge for auditors and end users. TAPA TSR describes the features and capabilities that a locking system is required to meet as part of the certification audit. This is what is currently required in the TSR for locking systems:

Level 1 = High-quality, stainless, or hardened steel, heavy-weight high security locking device permanently installed on all cargo compartment doors. No chains, cables, lightweight bars, removable bolts/brackets, etc. to be used. Locking devices must be utilized and locked during the entire journey.

Level 2 = High-quality, stainless or hardened steel, heavy weight high security locking device permanently installed on all cargo compartment doors OR use of temporary devices such as chains, cables, light-weight bars, removable bolts/brackets, etc. to be used. Locking devices must be utilized and locked during the entire journey.

Level 1 & 2 = Locks must be:

- Electronically, automatically, or manually operated.
- Unique (duplicated codes/keys/passwords to open different locks not permitted).
- Locks and fixing devices must be able to withstand substantial force and be tamper evident.

Level 3 = Doors secured in line with LSP's/ Applicant's own internal policy.

4. Vehicle Threats and Risk Assessment

There are also requirements for seals, which can be used to complement the locking system:

As with locking systems no seals have been certified by TAPA to meet TAPA requirements. TAPA TSR levels 1, 2 & 3 require that tamper-evident seals be used on all direct, non-stop shipments. Seals shall be certified to ISO 17712 (I, S, or H classification). The LSP/Applicant shall have a documented procedure in place to ensure the seals are controlled and who (user, warehouse operator, or LSP, etc.) is responsible for applying and removing the seals.

The following 5 aspects should be followed when handling seals:

- Procurement/sourcing of seals (required certificate and confirmation of seals' delivery).
- Secure storage of seals.
- Records for handing out seals.
- Training of authorized employees to apply and remove seals.
- Seals' application and removal records.
- Identification of compromised seals and initiation of relative response protocol.

In addition, the TSR has optional locking enhancements that can be added to the certification:

- Internal or protected door hinges on cargo compartment doors.
- Cargo compartment doors cannot be opened independently, first door must hold the second door in place.
- Cargo compartment fitted with internal rear door lock-down system, operated remotely.

Transporting cargo by road is efficient but threats and risks must be managed. The value and attractiveness of cargo transported by road have been referenced in many supply chain studies.

It's widely acknowledged that a significant portion of supply chain losses occur during road transport segments, with the majority of incidents happening while the vehicles are parked. The value and accessibility of goods that can easily be turned into cash attract both opportunists and serious organised criminals. Modern road cargo transportation methods must be timely and cost-efficient to meet the demands of manufacturers, logistic service suppliers, and consumers. However, it's crucial to integrate suitable security measures when designing and overseeing road transportation systems. Prioritizing the safety of drivers, the cargo being transported, and the vehicles themselves should be inherent in the transportation methodology employed (such as adhering to TAPA Standards). It is through good design and planning that deterrents can be introduced that help prevent or minimise the impacts of cargo loss.

The external threat

Just as security professionals complete risk assessments to protect road transport vehicles and their cargo, criminals are also carrying out their risk assessments. Is the risk of being caught worth the potential reward? When it comes to attacking vehicles, criminals do not like to make noise, take too long to access their target cargo or be interrupted. In most incidents organized criminals will have the knowledge to

- Attack the vehicle when it is in a vulnerable location.
- Access the cargo compartment by defeating or avoiding the physical measures in place.
- Have a plan for neutralizing or ignoring any electronic sensors they know will be in place.
- Calculate how much time they need to complete their operation and make their escape with their targeted cargo.

The opportunist threat

The lack of secure parking locations or the transport providers' reluctance to use them, often results in vehicles parking in inappropriate unsecured locations. These unsecured locations are often targeted by opportunist criminals. Incidents can occur regardless of the driver taking a rest in their vehicle cab or being or absent from the vehicle. The vehicles' onboard security is often the only protection, and the locking system provides the first line of defence against the criminal.

The internal threat

Often the easiest way for a criminal to gain access to the cargo is with the assistance of a person from within the Logistics Service Suppliers own organization. It is an unfortunate fact that employee's collaboration with criminals is still a common risk. Procedures to control shipping information, keys, pin codes, and unsupervised access to the cargo are also important factors to consider in protecting the cargo from internal threats.

The impact

The consequences of not considering the threat from a criminal enterprise, unfortunately, go far beyond the value of stolen cargo. Injuries to drivers, significant supply chain disruption, and loss of revenues are all potential impacts that can result from a successful criminal incident.

Data, data, data

The availability of good data is crucial to the risk assessment and preplanning for protecting cargo transported by road. The location and details of historic criminal activity are key considerations when designing suitable countermeasures for a transport vehicle. Therefore, identification of criminal hotspots, use of safe routes, best available parking locations, and pre-approved rest stops should all be part of the risk assessment process.

Suitable and sufficient management systems

Management commitment to support security policy and procedures in place that enforce the selection of the mitigation options should be in place as standard practice.

Locking systems - Designing out the risks

Vehicle locking systems should be designed to assist in supporting the basic security principles of deter, detect, delay, respond and when used in conjunction with additional security measures such as electronic sensors and alarms can provide a high level of confidence in the security design. Inadequate locking systems, such as plastic seals or low-quality padlocks and chains may attract the attention of criminals (note: padlocks and chains, as well as locking devices featuring seal functionality, are TSR3 acceptable). Even minor upgrades in locking systems could improve the protection of the cargo. Examples to consider are:

- Protecting the cargo compartment door and lock vs the lock mechanism,
- Permanently installed heavy-duty lock vs enclosed padlock,
- Enclosed padlock vs a bolt seal,
- Bolt seals vs a plastic seal,
- Padlock vs a no-lock policy.

Risk assessment

Most security practitioners will advise the use of a risk assessment process to help select the countermeasures that can help mitigate the threat of theft to an acceptable level. The selection of a suitable locking system should be aided by the risk assessment process.

- What features/protection the locking system must provide
- The consequences of the locking system being defeated.
- Does the locking system complement the measures that support the protection of the driver, the cargo, and the vehicle? These can include a combination of pre-defined emergency/operational procedures, physical locking systems, alarm sensors, and tracking/signaling technology.
- Supporting procedures that allow for event management and emergency response.

While this LSG is focused on locking systems, when completing a vehicle risk assessment, it is equally important to consider all the areas that can be exploited by perpetrators looking to steal the vehicle and/or its load. Therefore, expanding the risk assessment to cover these areas is highly recommended.

- Cargo compartment integrity: Are the doors, sides, floor, and roof of the cargo compartment satisfactory for the type of cargo the vehicle is required to transport?
- As TSR provides 3 levels of security, has the right level been selected for protecting the driver, the cargo, and the vehicle?
- Are there any unique threats that need to be considered for a particular route? These could include transiting a high-risk area, specific intelligence of criminal threats, or network infrastructure problems such as roadworks, bad weather, or civil action.

5. Case Study On Secured Container Security

Security Level TSR1 – Road Container Transport

With the Revision of the TSR 2020 standard, TAPA introduced the Modular option where the LSP/Applicant can select which transportation option best suits their needs. The inclusion of a “Road Container” option was the most challenging. Meeting the requirements of TSR level 1 could only be achieved with approved waivers and/or installing permanent modifications to the container. It was hoped that the industry would recognize a demand for TSR 1 road container modes of transport and provide TAPA with innovative solutions. This document provides the results of such a collaboration between TAPA EMEA, an Independent Audit Body, a subject matter expert, and a Logistics Service Provider to source and implement a TSR 1 Road Container Solution.

Although welcomed by the industry, the introduction of the TSR Sea Container Road module has created a challenge to introduce TSR level 1 as an achievable option. While a standard truck and container chassis can be upgraded by the operator to comply with TAPA standards, the containers are in most cases owned by a leasing or shipping line company and no permanent modifications are possible to the container to achieve TSR 1. This results in the following barriers to overcome to achieve a TSR 1 certification status:

- A sea- container has no installation to power electronic locking and GPS/GSM systems.
- In normal use, a container is not securely attached to the trailer or chassis.
- Permanent modifications or drilling holes in the container can only be undertaken if the container is owned by the shipper or with a written agreement from the leasing or shipping company. Any unauthorized modifications to a leased or third-party-owned container will result in high repair charges after returning the empty container to its owner.

This study set out to see if practical solutions could be found to provide a TSR 1 Certification for a sea container road transport operation.

Background

Before this study, to meet the permanently fixed lock installation requirements for TSR Level 1, sea container transportation, the LSP's only option was to provide a modified sea container with a permanently installed/welded lockbox, containing a shielded lock with a unique key. This solution is still a requirement for the study, but the installation should be completed by the owner/provider of the container to ensure no liability for unauthorized modifications arises. Lockbox containers are often used for stationary container storage where additional security is needed and where the containers are rarely transported. A lockbox on containers intended for road transport is a viable solution when used with other measures to improve container protection and achieve TSR level 1.

The applicable physical requirements from TSR level 1 requires (also see section 9 TSR):

- High-quality, stainless or hardened steel, heavy weight high security locking device permanently installed on all cargo compartment doors. No chains, cables, lightweight bars, removable bolts/brackets, etc. are to be used. Locking devices must be utilized and locked during the entire journey.
- Locks must be:
 - Electronically, automatically, or manually operated.
 - Unique (duplicated codes/keys/passwords to open different locks not permitted).
 - Locks and fixing devices must be able to withstand substantial force and be tamper evident.



- LSP/Applicant must have detailed and documented protocol in place that includes:
 - Tracking loaded trailers/containers when tethered to a truck and when uncoupled by criminal action or in error.
 - 24/7 monitoring.
 - The ability to geofence routes and parking locations.
 - Documented response protocols for handling emergencies.
- A tracking device must be installed on the trailer/container in a covert location. The device can be installed internally or externally.
- When trailers/containers are being utilized, tracking devices must report events to include:
 - Untethering (unhooking) of the trailer/chassis
 - Device tampering of any of the installed security systems.
 - Truck/trailer/container stoppage
 - Tracker battery status
- When trailers/containers are being utilized tracking devices must be equipped with a battery backup capable of maintaining the signaling capacity of the tracker for not less than 24 hours at a “reporting” rate of not less than one “reporting” every five minutes while the trailer is untethered.
- Unauthorized opening of cargo compartment doors sends a signal to AMC.
- Unauthorized opening of cargo compartment doors activates an audible (acoustic) high-decibel alarm.

Therefore, meeting the TSR 1 requirements by sourcing equipment that is intended for or can be adapted for container use can be achieved but the solution must be certifiable, and working with TAPA and/or the Independent Audit Bodies to validate the solution is an important consideration.

Generally, when referring to containers this article is referring to Sea Containers such as 20' - 40' - 45' DV (ISO Dry Van), USA 48' or 52' or Reefer containers. Except for the doors, these types of containers all have an excellent design for resistance against attacks.

- Steel sheet thickness of sidewalls and roof (Ca. 1.8mm) of Sea Containers is roughly double that of Car sheet and gives more resistance compared to normal Semi-Trailer sidewalls and roof.
- The under-structure floor is stronger, and the cross-member distance is so narrow, that a person cannot pass through.
- Reefer containers and Reefer- Semi-Trailer bodies have comparable excellent resistance to almost any attack.

Below is a list of unique challenges to overcome in the selection of equipment regarding TSR 1 container compliance.

- Availability of containers equipped with a permanently installed lockbox
- Limited options to connect the container and the chassis to a GPS tracking system.
- Containers may be loaded or unloaded when the container is not fixed to the chassis. TSR does not cover this scenario (not road transport) and the LSP should avoid or introduce special security measures to cover such circumstances.

Case Study Solution - Technical aspects to meet the TSR1 requirements

During the study and to meet TSR1 requirements' intent, special attention was given to selecting and incorporating equipment that achieves a TSR1-compliant truck, trailer, and container.

This included ensuring the truck's alarm systems were effective, the transmission of associated signals, additional telematics systems/equipment fitted to the container chassis, and the monitoring of the container doors.

Equipment and systems were specified as follows:

Additional necessary equipment:

- Door bar lock
- Door sensor (TSD)
- Saddle Coupling Lock
- Padlock for Container (Lock Box)
- Chassis GPS
- Padlock for kingpin or latch protection

For this case study, the vehicle telematics installed in the tractor unit is not only monitoring the cab doors but also any movement, manipulation, or opening of the container doors.

The alarm system is combined with an acoustic warning signal. If activated the driver has a short time to confirm and disarm the system. Once the alarm system is triggered it initiates communications. A GPS position is automatically sent to the Alarm Monitoring Centre (AMC). The AMC can reset the alarm system by following a secure standard procedure. This requires a phone call between the security service provider/ traffic planning department and the driver. The driver must verify with a password.

If the driver is not attainable or does not say the right password, the security company sends the police to his location. The truck then can be located through the geo-position of the vehicle.

Implementation of additional locks



For further security, a special high-security Door Bar lock is installed. The features of this Lock are: The claws are forked and must be placed over the 2-door bar distance holders. The connecting bar, between these claws, is constructed of material that is resistant to drilling and flexing. Beam

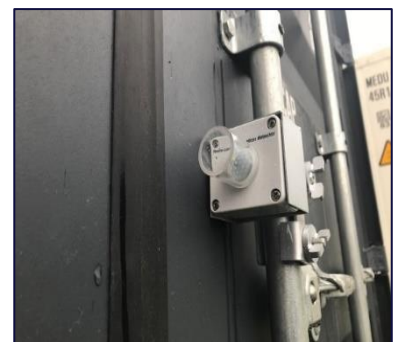
locks provided by the client were also installed on the container offering additional security protection.



Installation of light barriers

In addition to the listed safety measures, a device is attached that creates a light barrier between the two inner door bars. The device is connected via a safe, not manipulable Wi-Fi connection to the alarm control inside the vehicle cab.

If the light barrier is activated in the event of a door attack attempt, the vehicle's alarm system is instantly triggered.



Installation of a separate GPS

Alternatively, to the above-mentioned light sensor option, a wired GPS & seal option has also been established. In this mode of operation and monitoring of container doors, it is a standalone GPS equipped with a steel wire mesh cable to



connect all door opening elements (rotary rods, latches, and removable bar locks) to the GPS device. Therefore, if an attacker were to cut the cable or attempt to damage it or open the doors unauthorized, the GPS device would send an alarm or tamper alert to the agreed-upon or system-stored locations (traffic planning department, driver, monitoring center, etc.).



Installation of additional chassis GPS in Telematics



To protect the container itself from being stolen by lifting it off the chassis, an additional alarm system is installed. A motion detector fixed on the chassis framework registers any weight difference, with or without the container. When the container is lifted, a signal is immediately sent to the alarm system in the vehicle cab GPS/GSM.

Installation of additional King Pin / Latch Protection



To detect and deter the chassis being stolen, a lock with a sensor is installed. It connects the trailer with the driver's cabin through the saddle plate. The alarm is activated when an unauthorized decoupling occurs and sends an alarm to the vehicle cab and the AMC.



The case study team concluded that the equipment used provided an acceptable anti-theft deterrent and physical protection to the vehicle, chassis, and container. Used in conjunction with the driver and AMC response procedures, the above-mentioned proposals meet the intent and requirements for a TSR 1 container road transport. This solution could be incorporated by an LSP into their TSR 1 Certification plans.

A practical solution

- The container is equipped with a solid, pre-installed “Lock Box “.
- The lockbox to be locked with a padlock, see TAPA TSR LSG document for examples. The Lock Box holds the container doors together.
- Use an additional movable Door- Bar- Lock. However, this lock must be fitted over the door bar distance holders of the right and left door. The locks claws must be forked to achieve that.
- A battery-powered motion sensor to be fitted on the left door, controlling the right door movements.
- This sensor must have a Blue Tooth, GSM, Infrared or another communication unit, which communicates with a receiver unit in the cabin of the truck, for onward communication to an Alarm and Monitoring Centre for further action. (Alternatively, the separate GPS option can be used here as well, detached from the tractor unit)
- The alarm system battery status is to be constantly monitored and communicated.
- The container must be firmly connected to a chassis. Firmly, in this case, means either welded or electronically held in place or monitored. The latter is possible by making use of modern air suspension chassis, weighing the container, and acknowledging the weight difference. An unauthorized lift of the container must trigger an alarm via the chassis GPS/GSM fixed unit to the AMC.
- This chassis-located sensor device should also detect an unauthorized untethering of the chassis.

Please note that the above proposal is a variation of the case study to demonstrate alternatives do exist. In addition to this option, many other alternatives could be explored and discussed with TAPA.

We would also like to thank PLL Projekt-Logistik GmbH & Heinrich Langhorst GmbH & Co.KG in Bremen (Germany) for their support and for providing solution-oriented information and approaches.

6. Locking Systems

It is reasonable to expect that a good locking system will ensure the door to the cargo compartment remains locked and closed until opened by authorised means. When we refer to a locking system in this document, we are not just focused on a single type of lock, cable, chain, bar, bolt, etc. We are focused on all the component parts that create the locking system. This may also include elements of the cargo compartment, the cargo compartment door and any other associated devices that hold the door closed.

Fit for purpose

The enemy of the road transport criminal is time and noise. By installing high-quality locking systems, you are deterring some criminals from even trying to attempt.

To be considered:

- The locking system could be installed in or on suitable doors and/or frames of the vehicle so that the cargo compartment door and frame are incorporated into the locking system providing additional protection to the vehicle.
- High-security locks should not be able to be detached from the vehicle by cutting or forcing the adjacent fixings. Examples of a robust installation include the use of concealed bolts and/or the lock being welded to steel plates or similar, attached to the vehicle.
- Fit for purpose can also mean the combination of requirements changes depending on the vehicle, its load, and the routes being used. High-grade steel locks affixed to external door bars may be judged as sufficient if the vehicle does not stop before reaching its destination. However, if the vehicle must stop one or more times on route, this may create an opportunity for a criminal attack. Trailer external door bars, the door bar fixings, or the door hinges can easily be cut rendering the lock ineffective. In this example, the use of just a high-grade lock may not be sufficient to deter an attack. The locking system could be upgraded with additional features such as sensors connected to the telematics system and/or a different locking solution incorporated into the design of the door and frame could be considered.

Quality and conformance tests

There is a wide range of suitable locking systems available for road transport vehicles and vans from many suppliers. Unless you are a lock system expert or have access to one, the message is “user beware”. Use reputable suppliers and/or expert consultants to source your locking needs. Unfortunately, there are many questionable locking solutions that at first glance may appear to be adequate, but in fact, may do little to deter or delay criminals in their desire to access the vehicle cargo compartment. Users with limited knowledge of locking systems may often look for products that come with a conformance test certificate. Official test certificates for lock products are a good indication of quality and can help you source products (see 7.2). Tested products will indeed offer some assurance that the locking systems they are considering meet or exceed their expectations.

You should know, however, that the conformance test process can fall short of proving the complete locking system is fit for its intended purpose. This can happen when only part of that product has been tested and not the complete design. Testing is often restricted to traditional padlocks and key cylinders. These are single components that are incorporated into the overall locking system. It could be the associated lock fixings are untested or unsuitable for their intended purpose.

Locking System Categories

In this document, we have categorized locking systems into five areas. The features included in this document are not TAPA requirements but are good indications of what to look for when selecting suitable products. In addition to traditional locking systems, we also provide examples of specialist or customized locking systems that can immobilize the vehicle or use other innovative means to secure the cargo compartment.

Locking systems have been categorized as follows and include features that should be considered when selecting suitable products.

Table 1: Locking system categories (CKOS)

1. Conventional Key Operated Systems	
a. Cylinders	
	<ul style="list-style-type: none"> • Preferably certificated to: EN/BS/DIN/CEN12320 Grade 5, or ASTM 883-5 Type P01 or Alternative. • Captive Key when unlocked. • Minimum of Key Differs: 30.000. • Corrosion resistant to ISO 9227. • Locking Cycles Grade 5: 75.000. • Shackle to be hardened to Ca. 3.500kg/ 7.700 LBS cutting force. • Testing Institutes accredited to DIN/EN/ISO/IEC 17065. • Devices, Brackets, or HASP are housings for Cylinders / Padlocks or Electronically Powered Locking Pins.
b. Housings	
	<ul style="list-style-type: none"> • Device, Bracket, or HASP are housings for Cylinders / Padlocks or Electronically Powered Locking Pins. • Devices material to be: Stainless steel, Surface Hardened Steel, Casted Steel. • Devices to be robust, either milled, welded, or cast with a minimum 7 mm between outer gladding and the mechanical cylinder part (Barrel). • Heavyweight Devices (minimum 6kg) consists of 2 elements: <ul style="list-style-type: none"> ➤ Device, Bracket, HASP ➤ Locking Cylinder or Locking Cylinder inside a Padlock
c. Application/Product Types	
	<ul style="list-style-type: none"> • Cargo compartment doors <ul style="list-style-type: none"> a. Swing Doors: Both doors are locked. The right door is permanently locked, and the left door is externally or internally held behind the right door. <ul style="list-style-type: none"> ○ Door bar lock (removable) ○ Permanently fixed door-to-door lock ○ Permanently fixed lock door-to-frame lock ○ Hinge protection by adding fixed pins near the hinges, inside the cargo compartment. Locked during the entire journey. b. Rollup/Shutter Doors: Cannot be forced, even with the help of a forklift. Locked during the entire journey. <ul style="list-style-type: none"> ○ Permanently fixed locking system ○ Removable locking system ○ Sliding door: Permanently fixed locking system c. Key management in place

Table 2: Locking system categories (KOS)

2. Keyless Operated Systems	
a. Application/Product Types	
	<ul style="list-style-type: none"> • Cargo compartment doors <ul style="list-style-type: none"> a. Swing Doors: Both doors are locked. The right door is permanently locked, and the left door is externally or internally held behind the right door. <ul style="list-style-type: none"> ○ Permanently fixed door-to-door lock ○ Permanently fixed lock door-to-frame lock ○ Hinge protection by adding fixed pins near the hinges, inside the cargo compartment. Locked during the entire journey. ○ Remotely operated electronic locking system (by a third party) ○ Driver-operated electronic locking system (verification procedures in place) b. Rollup/Shutter Doors: Cannot be forced, even with the help of a forklift. Locked during the entire journey. <ul style="list-style-type: none"> ○ Permanently fixed. Remotely operated electronic locking system (by third party) ○ Permanently fixed. Driver-operated electronic locking system (verification procedures in place)

Table 3: Locking system categories - Customized Locking Systems

3. Customized Locking Systems (CLS)	
a. Application/Product Types	
	<ul style="list-style-type: none"> • Cargo compartment doors <ul style="list-style-type: none"> a) Swing Doors: Both doors are locked. The right door is permanently locked, and the left door is externally or internally held behind the right door. <ul style="list-style-type: none"> ○ Permanently fixed. Locking systems integrated with telematics systems. ○ Permanently fixed. Multi-point door locking system. ○ Hinge protection by adding fixed pins near the hinges, inside the cargo compartment. Locked during the entire journey. b) Rollup/Shutter Doors: Cannot be forced, even with the help of a forklift. Locked during the entire journey. <ul style="list-style-type: none"> ○ Permanently fixed. Locking systems integrated with telematics systems. c) Sliding door: Permanently fixed locking system <ul style="list-style-type: none"> ○ Permanently fixed. Locking systems integrated with telematics systems. ○ Permanently fixed. Multi-point door locking system.

Table 4: Support Solutions on Locking System Categories - Immobilizing Systems

4. Immobilizing and Monitoring Systems
a. Application/Product Types
<ul style="list-style-type: none"> • Vehicle <ul style="list-style-type: none"> ○ Air-brake locks. key or remotely operated. ○ Engine shut off device. Vehicle stationary activation
<ul style="list-style-type: none"> • Trailer <ul style="list-style-type: none"> ○ King pin lock. Key operated ○ Draw bar locks. Key operated ○ Swap-body/landing gear locks. Key operated ○ Air-brake locks. key or remotely operated.

Table 5: Support Solutions on Locking System Categories (Seals)

5. Seals
a. ISO 17712 - Uniform procedures for the classification, acceptance, and withdrawal of mechanical freight container seals.
<ul style="list-style-type: none"> • 17712 - I = Indicative – not recommended for security application • 17712 - S = Security – not recommended for security application • 17712 - H = High Security – CTPAT minimum
b. E Seals
<ul style="list-style-type: none"> • Permanently fixed. Integrated electronic seal and locking device. Variants include the remote-controlled release or keypads. See also Table 2. • Removable. Used in place of a conventional ISO 17712 seal. Variants include remote-controlled release or keypads
c. Application/Product Types. Seals are not suitable as a locking device on their own, their main purpose is as an indication of tampering.
<ul style="list-style-type: none"> • Cargo compartment doors <ul style="list-style-type: none"> a) Swing Doors: Both doors are locked. The right door is permanently locked, and the left door is externally or internally held behind the right door. <ol style="list-style-type: none"> 1. Bolt seals class H. 2. One-way bracket seals class H. Steel door bar, bracket, and locking cable. 3. Cable seals class H. b) Rollup/Shutter Doors: <ol style="list-style-type: none"> 1. Cable seals class H.

7. Frequently Asked Questions

When you compare the road transport vehicles and methods of securing them in the Americas v EMEA or APAC you will often see different vehicle types and locking systems solutions available in one region but not in the others. This is further compounded by a lack of global locking system conformance standards that can be applied to the whole locking system and not just the component parts.

The situation is clearer on seals as ISO 17712 provides a classification system that is widely followed and required by CTPAT and TAPA requirements. It is still the case that many seals used today are of the wrong type for the cargo that is being transported or are being used as a locking device, which is not their primary purpose.

This section seeks to provide comments on some of the questions we receive on locking systems and seals.

7.1. How can I ensure locking system suppliers' products are suitable for my needs?

Response: Ask your supplier for certification and testing evidence for the products you are considering. It is the lock manufacturer who invests time and effort in obtaining test certificates to validate and promote their products. Once tested by an accredited testing institution (ISO/IEC 17065), the lock should display the test number that was issued with the certificate.

Many specialist locking systems cannot be tested by conventional means because they incorporate several components that cannot be tested as part of a complex lock design. These locks may still have test certificates for the cylinder and padlock components, but the casing, hasps, bolts, and other fixing components may not have been strength or tamper tested. Reputable suppliers of specialist locking systems (with or without partial component test certificates) will have additional material, including customer endorsements available to support the quality of their products.

Sourcing lower-cost, unbranded, or an unknown manufacturer's product can lead to unsuitable or unreliable products being purchased.

7.2. Do global conformance tests for road transport vehicle locking systems exist?

Response: Internationally recognized tests for road cargo transport vehicles locking systems do not exist. Assessment and test criteria for locking components that may be used in road transport vehicle locking systems are available. These standards are used by accredited testing institutions (ISO/IEC 17065) and will produce test certificates for padlocks and cylinders that meet the appropriate assessment and test criteria.

These include (there are other test standards with similar/same requirements) CEN 1303 - to establish assessment and test criteria for the measuring of a key cylinder's resistance to physical attack, key security, fire resistance, and durability. Following the test, the cylinder will be graded. The security grading test will be for resistance to drilling, resistance to chisel attack (no of blows), resistance to extraction (pulling), and torque resistance.

CEN 12320 –An assessment and test criteria for the measuring of padlocks and their fittings' resistance to physical attack typically used by criminals. The locks are graded up to level 6. The higher the grade the stronger the lock. The padlock will be used in conjunction with a hasp, staple, door bolt, outer casing, or other fitting. These fittings are not normally tested and can become a weak point in the locking system.

7.3. Apart from test certificates and a supplier's customer endorsements are there other features that can help in the selection of a good locking system for a road transport vehicle?

Response:

- The locking system should visually deter interest in the vehicle (heavy, hard to defeat, seek a softer target)
- Locking system design features will require significant time to defeat with hand tools or portable power tools
- Will create noise whilst being attacked

- When selecting a suitable locking system, in addition to the locking device it is equally important to pay attention to the quality of the hasp/bracket/housing that the lock will be attached to.

7.4. What does it mean when I see a supplier's locking system product advertised as CTPAT or TAPA compliant?

Response: TAPA does not certify or endorse any lock suppliers' products. If a lock supplier states that their products are TAPA compliant, this is their assessment that their products are suitable for use to meet TAPA requirements and not an endorsement by TAPA.

7.5. How can I ensure High-Security Seal products are suitable for my needs?

Response: To ensure a High-Security Seal meets the necessary requirements, it must be certified as ISO 17712 and marked with an "H". To validate that the seal is genuine you should ask your supplier to provide evidence and ISO certificates that include the following:

- The manufacturer of the seal is certified to ISO 9001
- An accredited testing institution (ISO/IEC 17065) has tested the seal by performing tests against the ISO 17712 scope and has produced a certificate of conformance for the seal.
- The mechanical strength of the seal and its resistance to tampering must meet or exceed the requirements of Clauses 5 and 6 of the High-Security Seal category.
- **Seals are used for sealing not for locking!**

8. Useful links

8.1. Information on Standards

- **ISO 17712** www.iso.org/standard/62464.html
- **CEN 1303 Cylinders**
<https://standards.iteh.ai/catalog/standards/cen/86538578-d5e5-476c-8c74-1d6d3079b499/en-1303-2015>
- **CEN 12320 Padlocks**
<https://standards.iteh.ai/catalog/standards/cen/27192e2a-867a-4028-a123-85ad7a867c5c/en-12320-2021>





8.2. TAPA Members - Security Service Providers (locking systems)

- <https://www.imbema.com/>
- <https://www.maplefleetservices.co.uk/>
- <http://www.protect-vehicle.eu/>
- <https://www.zf.com/>
- <https://autida.com/>
- <http://www.people-t.com/>
- <http://www.multiprotexion.com/>
- <http://www.babaco.com>
- <http://www.m-protect.net/>
- <https://www.blockshaftgroup.it/en/>
- <http://www.tronik.pl>









9. Appendix A: Locking Systems Examples



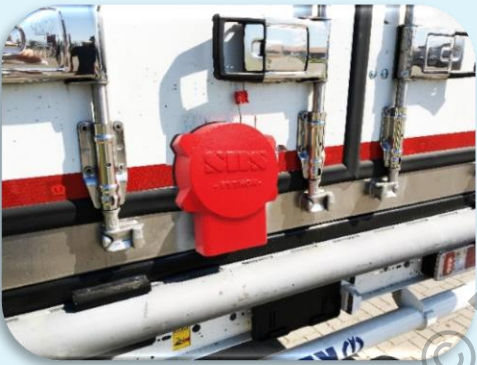





The following products, solutions, and mentioned Security Service Providers are only suggestions to assist in compliance with our TAPA TSR standards. It is important to note that TAPA assumes no responsibility for the incorrect selection, faulty installation, non-conformity, or non-fulfillment of the chosen locking solution concerning the TSR levels. Additionally, TAPA does not provide guidance on which locking solutions would be preferable for each TSR security level. The following data and information are based on descriptions and visual material provided by TAPA Security Service Providers. The appropriate locking solution, associated installation, and respective vehicle type are to be agreed upon between the user and the supplier. TAPA acts solely as a supporter and facilitator in the selection of the designated locking solutions.

9.1. Conventional Key Operated Systems



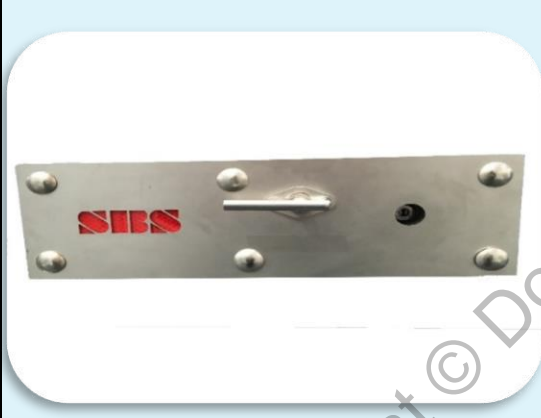

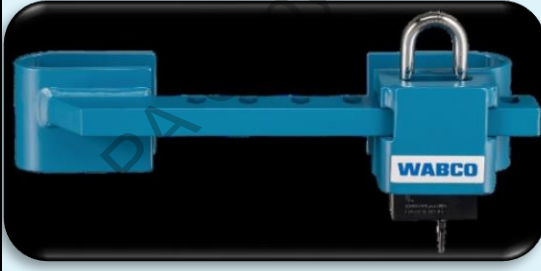



f CKOS	Product	Description
CKOS - 01	SBS TURTLE	<p>Lock consists of two parts: one part on the left-hand door and one on the right-hand door, which are locked using a padlock. Made of stainless steel for better protection.</p>   <p>http://www.imbema.com</p>
CKOS - 02	SBS BDL	<p>Lock using a padlock that connects the steel door plate to a stainless steel housing which can be welded to the chassis or bolted to the left-hand door.</p>   <p>http://www.imbema.com</p>



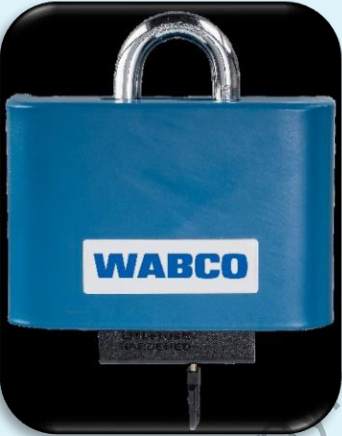



<p>CKOS - 03</p>	<p>SBS Cobra</p>	<p>Heavy adjustable lock suitable for trailer and container doors with locking bars and closed with a high-quality padlock.</p>	<div data-bbox="384 315 954 696" data-label="Image"> </div> <div data-bbox="1098 282 1433 376" data-label="Image"> </div> <div data-bbox="1034 696 1433 757" data-label="Text"> <p>http://www.imbema.com</p> </div>
<p>CKOS - 04</p>	<p>SBS Rhino container lock</p>	<p>Detachable lock specially for container semi-trailers which is attached across a special strip on the lower frame of the trailer using a high-quality padlock and blocks opening of the container door.</p>	<div data-bbox="384 925 922 1339" data-label="Image"> </div> <div data-bbox="1098 902 1433 996" data-label="Image"> </div> <div data-bbox="1002 1317 1433 1375" data-label="Text"> <p>http://www.imbema.com</p> </div>
<p>CKOS - 05</p>	<p>Turtle - Barn Door Lock</p>	<p>Heavy-duty, manual locking solution, featuring high security padlock for use on swing and barndoor applications</p>	<div data-bbox="384 1507 922 1921" data-label="Image"> </div> <div data-bbox="1114 1451 1433 1545" data-label="Image"> </div> <div data-bbox="890 1944 1433 2004" data-label="Text"> <p>https://www.maplefleetservices.co.uk</p> </div>









<p>CKOS - 06</p>	<p>Cobra Container Lock</p>	<p>Flexible, heavy-duty container door lock featuring a separate padlock</p>   <p>https://www.maplefleetservices.co.uk</p>
<p>CKOS - 07</p>	<p>Key Operated Freight Lock</p>	<p>Internally mounted, heavy-duty, multi-point locking application with slam lock action - A proven and trusted security solution with more than 40 years in field operation.</p>   <p>https://www.maplefleetservices.co.uk</p>
<p>CKOS - 08</p>	<p>BDL - Barn Door Lock</p>	<p>A robust padlock-based locking application designed for use on swing and barndoor applications</p>   <p>https://www.maplefleetservices.co.uk</p>
<p>CKOS</p>	<p>BondLock</p>	<p>Powerful and versatile locking mechanism installed on the inside of the cargo area, suitable for all vehicle and door types.</p>   <p>https://www.maplefleetservices.co.uk</p>

<p>CKOS - 10</p>	<p>PV-02 CUBE Lock</p>	<p>Revolving doors and containers universal lock with high-class ABLOY PL358 padlock</p>   <p>http://www.protect-vehicle.eu/</p>
<p>CKOS - 11</p>	<p>PYTHON Trailer Lock</p>	<p>Effective massive lock for the right door of the trailer, locked with a high-quality ABLOY PL358 or SBS PL7000 padlock</p>   <p>http://www.protect-vehicle.eu/</p>
<p>CKOS - 12</p>	<p>PV-03 MAC Box Lock</p>	<p>Lock for handles and bolts in the bodies of delivery vehicles and trucks (integrated lock insert)</p>   <p>http://www.protect-vehicle.eu/</p>
<p>CKOS - 13</p>	<p>PV-05 ROLLER SHUTTER Door Lock</p>	<p>Mechanical roller shutter lock for a forwarding container or BDF. Used to immobilize the roller shutter lock lever in the "closed" position</p>   <p>http://www.protect-vehicle.eu/</p>

<p>CKOS - 14</p>	<p>PV-09 Roller Shutter Door Lock</p>	<p>A universal lock for roller shutter doors, connecting the roller shutter door to the container/trailer frame. Automatic locking of the cylinder without turning the key</p>
		
<p>http://www.protect-vehicle.eu/</p>		
<p>CKOS – 15</p>	<p>PV-14 Roller Shutter Door Lock</p>	<p>Steel buckle used to lock a semi-trailer with a roller shutter door. The roller shutter door handle is locked by placing an "ear" on the handle and preventing it from opening.</p>
		
<p>http://www.protect-vehicle.eu/</p>		
<p>CKOS - 16</p>	<p>PV-04 INOX Container Lock</p>	<p>universal Door Bar Lock 240-490 mm, 5mm thickness stainless steel. The buckle fastens vertical steel locking bolts (bars), preventing the door from opening.</p>
		
<p>http://www.protect-vehicle.eu/</p>		
<p>CKOS - 17</p>	<p>PV-04 INOX STRONG Container Lock</p>	<p>strong version, 8 mm thickness, universal Door Bar Lock 230-480 mm, stainless steel. The buckle fastens vertical steel locking bolts (bars), preventing the door from opening.</p>
		
<p>http://www.protect-vehicle.eu/</p>		









<p>CKOS - 18</p>	<p>PV-12 SR-2 LAMBERET Trailer Lock</p>	<p>Anti-Theft Lock dedicated to SR2 Lamberet Trailer / stainless steel, mounted on the lower doors of the Lamberet semi-trailer</p>   <p>http://www.protect-vehicle.eu/</p>
<p>CKOS - 19</p>	<p>INLOCK Basic Lock</p>	<p>Permanently installed internal blockade (manual mechanical), certified ABLOY insert in set, 2 locking pins that fit into the semi-trailer frame</p>   <p>http://www.protect-vehicle.eu/</p>
<p>CKOS - 20</p>	<p>Basis</p>	<p>Basis is a flexible, mechanical door lock designed for use with door bars. No mounting is required.</p>   <p>http://www.zf.com/</p>
<p>CKOS - 21</p>	<p>Omega</p>	<p>Omega is a flexible tamper-proof designed mechanical door locking system for use with door bars.</p>   <p>http://www.zf.com/</p>



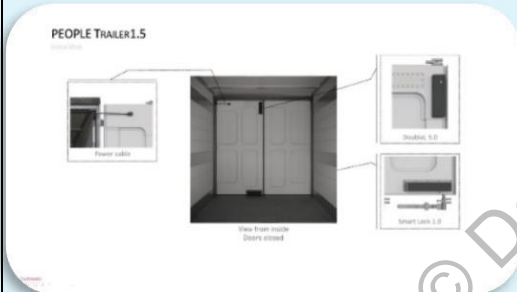





<p>CKOS - 22</p>	<p>TSR-2fiXX</p>	<p>TSR-2fiXX is a stainless steel fixed mounted door locking system for swing doors providing an anti-drill protection.</p>	  <p>http://www.zf.com/</p>
<p>CKOS - 23</p>	<p>TLB</p>	<p>TBL is a fixed, mechanical, padlock operated door lock system that can also be used for insulated doors.</p>	  <p>http://www.zf.com/</p>
<p>CKOS - 24</p>	<p>TTB</p>	<p>TTB is a fixed mechanical padlock solution for swing doors of a mixed or screwed and welded design.</p>	  <p>http://www.zf.com/</p>







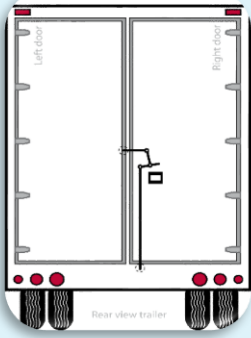

<p>CKOS - 25</p>	<p>Truck Lock II</p>	<p>Automatic lock in which the catch plate can be welded or bolted to the truck body which makes it compatible with various body types such as steel or aluminium. Locks when the door is closed</p>	  <p>http://www.babaco.com/</p>
<p>CKOS - 26</p>	<p>Truck Lock III</p>	<p>This is a replacement for the easily defeated factory installed J-Hook. Truck-Lok III® is made from stainless steel body and constructed with a high security cylinder. The unit locks when door is closed.</p>	  <p>http://www.babaco.com/</p>
<p>CKOS - 27</p>	<p>Truck Lock V</p>	<p>This solution is for trucks with swing outdoors, this lock locks every time the door is closed, and the handle is put in the secure position.</p>	  <p>http://www.babaco.com/</p>
<p>CKOS - 28</p>	<p>Seal Lock</p>	<p>This is a unique device that combines a high-security padlock with a patented design enclosure. The SEAL LOK® when placed on a door and locked provides protection against tampering and the door hardware being cut.</p>	  <p>http://www.babaco.com/</p>

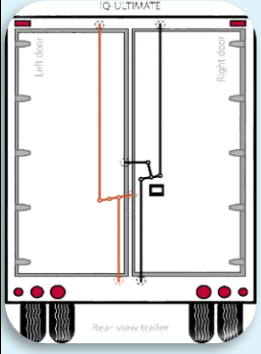



9.2. Keyless Operated Systems

Ref KOS	Product	Description
KOS - 01	Cooler-Guard	Keyless/modular system for trailers, swap-bodies, and trucks (frozen/non-frozen). No need for batteries/power supply. Automatic/Multipoint-locking. Cyber-secure. Cutting-resistant bolts. Audit trail/lock status/GPS. Remote-control or offline.
		 http://www.autida.com/
KOS - 02	Swap-Locks	Keyless/modular/movable system for trailers, swap-bodies, trucks, and vans. No need for batteries/power supply. Automatic locking/"slam-lock". Cyber-secure. Cutting-resistant bolts. Audit trail/lock status/GPS. Remote-control or offline.
		 http://www.autida.com/
KOS - 03	Shutter Door Integritas	Integrated electronic seal and locking system for shutter door applications - Features slam lock action, full audit trail & access control capabilities. Self-powered solution enabling simple installation.
		 https://www.mapleleetservices.co.uk



<p>KOS - 04</p>	<p>Barndoor Integritas</p>	<p>Integrated electronic seal and locking system for swing and barndoor applications - Features slam lock action, full audit trail & access control capabilities. Self-powered solution enabling simple installation.</p>
		 <p>https://www.maplefleetservices.co.uk</p>
<p>KOS - 05</p>	<p>Shutter Door FreightLock IQ</p>	<p>An internally mounted, high security, multi point locking solution with electronic seal for shutter door applications - Featuring slam lock action, full audit trail and access control capabilities - A proven and trusted security solution with more than 40 years in field operation.</p>
		 <p>https://www.maplefleetservices.co.uk</p>
<p>KOS - 06</p>	<p>BarnDoor FreightLock IQ</p>	<p>An internally mounted, high security, multi point locking solution with electronic seal for swing and barndoor door applications - Featuring full audit trail and access control capabilities - A proven and trusted security solution with more than 40 years in field operation.</p>
		 <p>https://www.maplefleetservices.co.uk</p>
<p>KOS - 07</p>	<p>BondLock</p>	<p>Powerful and versatile locking mechanism installed on the inside of the cargo area, suitable for all vehicle and door types. Featuring slam lock action, full audit trail and access control capabilities</p>
		 <p>https://www.maplefleetservices.co.uk</p>

<p>KOS - 08</p>	<p>PEOPLE Smart Lock 1.0</p>	<p>Self-powered internally-mounted smart IoT BLE enabled long autonomy locking device, manageable via Field App (BLE)</p>   <p>http://www.people-t.com/</p>
<p>KOS - 09</p>	<p>PEOPLE Truck/Trailer 1.5</p>	<p>Self-powered internally-mounted smart IoT BLE long autonomy locking & tracking solution, autonomous & manageable from distance via App and platform</p>   <p>http://www.people-t.com/</p>
<p>KOS - 10</p>	<p>GATELOCK VAN MEDIUM / LARGE</p>	<p>Electro-mechanical High Security Lock for LCV's operated with RIFD and BLUETOOTH and PLATFORM and able to connect to vehicle GPS and to be controlled remotely</p>   <p>https://www.blockshaft.it/</p>
<p>KOS - 11</p>	<p>BULKHEAD DOOR LOCK (XPS)</p>	<p>Electro-mechanical High Security Lock for LCV's operated with RIFD tag</p>   <p>https://www.blockshaft.it/</p>

<p>KOS - 12</p>	<p>ROLL-UP DOOR LOCK (GVRE)</p>	<p>Electro-mechanical High Security Lock for ROLL UP DOORS of HCV's (Luton Van & Trucks) operated with BLUETOOTH and PLATFORM + able to connect to vehicle GPS and to be controlled remotely</p>
		 <p>https://www.blockshaft.it/</p>
<p>KOS - 13</p>	<p>SBS Hornet</p>	<p>Locking system fitted under the chassis of the trailer. A fully automatic pneumatically operated lock at the frame of the trailer with locking bolts in the bottom of the doors.</p>
		 <p>http://www.imbema.com</p>
<p>KOS - 14</p>	<p>SBS Fox</p>	<p>Compact external lock that you open with an app on your phone. One part is mounted on the left-hand door and one on the right-hand door.</p>
		 <p>http://www.imbema.com</p>
<p>KOS - 15</p>	<p>SBS Inlock IQ Pro</p>	<p>Locking system consisting of a fully automatic pneumatically operated lock on the right trailer door with 20 mm thick pins.</p>
		 <p>http://www.imbema.com</p>

<p>KOS - 16</p>	<p>SBS Inlock IQ Ultimate</p> 	<p>Locking system consisting of a fully automatic pneumatically operated lock on the trailer doors with locking bolts on the top and bottom of the doors.</p>  <p>http://www.imbema.com</p>
<p>KOS - 17</p>	<p>SBS Mamba</p> 	<p>Mechanical lock with an electronic access control system which is used to lock and seal the shutter door of your trailer or container. Protects the door itself instead of the hook of the door. Lock opens via an app on telephone (traditional padlock also possible).</p>  <p>http://www.imbema.com</p>

9.3. Seals

Ref S	Product	Description
<p>S - 01</p>	<p>SBS E-Containerguard / Lock</p> 	<p>Mobile device with GPS which can be integrated quite easily with the seals of a shipping container, sending real time alerts to monitoring portal when seals are broken and doors opened.</p>  <p>http://www.imbema.com</p>

<p>S - 02</p>	<p>SP-4</p>	<p>Protects a container's customs seal against cutting. Integrated Duro F30 block lock.</p>	<div data-bbox="384 286 919 674" data-label="Image"> </div> <div data-bbox="1107 286 1430 360" data-label="Image"> </div> <div data-bbox="1007 629 1437 685" data-label="Text"> <p>http://www.imbema.com</p> </div>
<p>S - 03</p>	<p>Integriseal</p>	<p>A self-powered, lockable, electronic seal</p>	<div data-bbox="384 768 711 1211" data-label="Image"> </div> <div data-bbox="1139 768 1437 853" data-label="Image"> </div> <div data-bbox="1086 1167 1437 1267" data-label="Text"> <p>https://www.maplefleet-services.co.uk</p> </div>
<p>S - 04</p>	<p>One Way</p>	<p>Single-use keyless door lock and sealing system that requires a steel rope and bolt which are physically severed to open</p>	<div data-bbox="384 1361 1007 1559" data-label="Image"> </div> <div data-bbox="1286 1361 1430 1480" data-label="Image"> </div> <div data-bbox="1007 1570 1437 1626" data-label="Text"> <p>http://www.zf.com/</p> </div>
<p>S - 05</p>	<p>Seal Protector</p>	<p>The device provides protection against tampering with an exposed Seal. The unit covers and protect seal and accommodates any Padlock</p>	<div data-bbox="384 1749 767 2040" data-label="Image"> </div> <div data-bbox="1110 1738 1430 1850" data-label="Image"> </div> <div data-bbox="999 1995 1437 2051" data-label="Text"> <p>http://www.babaco.com/</p> </div>

9.4. Immobilizing Systems








Ref IMS	Product	Description
IMS-01	PV-10 SWAP BODY Lock	Manual Anti-theft blockade of adjustable supporting legs - SWAP BODY   http://www.protect-vehicle.eu/
IMS-02	PV-06 FX KING PIN Lock	Manual protection blocking the pin of the semi-trailer - KING-PIN, zipper insert on the side, closing by pressing the insert   http://www.protect-vehicle.eu/
IMS-03	PV-07 TOWING EYE Lock	Trailer Ring Lock for eyes of draw-bar trailers   http://www.protect-vehicle.eu/

<p>IMS-04</p>	<p>PVA-R Trailer Alarm System</p>	<p>Professional IP-65 alarm system dedicated to all types of truck semi-trailers - Box, Tarpaulin, Refrigerator. Possible control via telematics)</p>
		
<p>http://www.protect-vehicle.eu/</p>		
<p>IMS-05</p>	<p>Andis 1100 KingPin Lock</p>	<p>Heavy duty, high security, King-Pin Lock that is manufactured to withstand a wide variety of attacks,</p>
		
<p>https://www.maplefleetservices.co.uk</p>		
<p>IMS-06</p>	<p>SafeConnect IQ</p>	<p>High Security Trailer Immobilization</p>
		
<p>https://www.maplefleetservices.co.uk</p>		
<p>IMS-07</p>	<p>DriveLock</p>	<p>Driver recognition system that protects unattended vehicles against theft & unauthorized movement</p>
		
<p>https://www.maplefleetservices.co.uk</p>		









<p>IMS-08</p>	<p>W45</p>	<p>The W45 is a flexible solution designed to prevent unattached swap bodies from being picked up without authorisation.</p>	  <p>http://www.zf.com/</p>
<p>IMS-09</p>	<p>King Pin C</p>	<p>King Pin C prevents the theft of unattached semi-trailers while having the secondary function of clearly identifying them.</p>	  <p>http://www.zf.com/</p>
<p>IMS-10</p>	<p>Drawbar C</p>	<p>Drawbar C is a mechanical pin lock system designed to prevent the theft of drawbar trailers.</p>	  <p>http://www.zf.com/</p>
<p>IMS-11</p>	<p>Andis 1200</p>	<p>Ring lock (38/40mm eyes) for draw-bar trailers. Steel body with thick rubber coating and a high security Abloy cylinder.</p>	  <p>http://www.imbema.com</p>

<p>IMS-12</p>	<p>Alligator</p>	<p>Lock for trailers with a towing eye (also Swiss towing eye). High attack resistance steel locking house with integrated padlock.</p>
		 <p>http://www.imbema.com</p>
<p>IMS-13</p>	<p>Andis 1100</p>	<p>Lock for standard 2" kingpins. Covers the mounting bolts completely. Steel body with thick rubber coating, high security Abloy cylinder</p>
		 <p>http://www.imbema.com</p>
<p>IMS-14</p>	<p>SBS Skiplock</p>	<p>Prevents lifting or hooking of a container via a hook arm.</p>
		 <p>http://www.imbema.com</p>

9.5. Customised Locking Solutions

Ref CLS	Product	Description
CLS - 01	PV-09 ROLLER BLIND Lock Special	Securing the loading space of a container with a lift. Protects the elevator against unauthorized opening
	   <p>http://www.protect-vehicle.eu/</p>	
CLS - 02	Secured trailer solution	The SBS secured trailer solution consists of electronic trailer locks, an access control system, burglar alarm systems, GPS tracking equipment, cutting detection in the side walls of the trailer and a monitoring portal.
	  <p>http://www.imbema.com</p>	
CLS - 03	All in door	All in Door collects the best security devices in a single and solid ready-to-install solution
	  <p>http://www.multiprotection.com</p>	

<p>CLS - 04</p>	<p>Lock Matix</p>	<p>Lock Matix is a security system preserving your products and certifying delivery</p>
		<p></p> <p>http://www.multiprotexion.com</p>
<p>CLS - 05</p>	<p>FreightLock IQ</p>	<p>High security, multi point locking solution with electronic seal - Featuring slamlock action, full audit trail and access control capabilities - A flexible solution that can be tailored for bespoke requirements on any vehicle or door type</p>
		<p></p> <p>http://www.multiprotexion.com</p>
<p>CLS - 06</p>	<p>T-LOCK</p>	<p>Consists of: a robust, waterproof lock meeting the IP69K standard, four steel side latches and a left door blocking plate.</p>
		<p></p> <p>http://www.tronik.pl</p>

<p>CLS - 07</p>	<p>LimoLock</p>	<p>The LimoLock is a heavy-duty, high-end electronic security lock for any door type, operating stand-alone or connected.</p>	  <p>http://www.m-protect.net/</p>
<p>CLS-08</p>	<p>BasicLock</p>	<p>Electric locking system operating through a keypad or remote control</p>	  <p>http://www.m-protect.net/</p>
<p>CLS-09</p>	<p>GPS Seal Protector</p>	<p>Automatic notification of seal access provides time and location of each seal opening and closing event</p>	  <p>http://www.babaco.com/</p>
<p>CLS-10</p>	<p>LB3 Lock w Digital Seal</p>	<p>High security automatic roll up door lock integrated with Digital Cargo Seal</p>	  <p>http://www.babaco.com/</p>

<p>CLS-11</p>	<p>LB5 Lock with Digital seal</p>	<p>High security automatic swing outdoor lock integrated with Digital Cargo Seal</p>
		 <p>http://www.babaco.com/</p>
<p>CLS-12</p>	<p>OptiLock: ELB-Lock</p>	<p>Invisibly installed electronic door lock. Automatic locking, unlocking via telematics or keypad. Additional sensors can be connected.</p>
		 <p>http://www.zf.com/</p>
<p>CLS-13</p>	<p>OptiLock: ELB-Lock 90</p>	<p>Installed below trailer. Automatic locking, unlocking via telematics or keypad. Additional sensors can be connected.</p>
		 <p>http://www.zf.com/</p>

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