ABLOY®

Technical brochure

CLIQ®

ABLOY® PROTEC2

Technical details

ABLOY® PROTEC² CLIQ SYSTEM

PROTEC² CLIQ is an easy to use access control system based on detainer disc cylinders and electronic identification. Thanks to our double technology, the access is double secured. PROTEC², which is based on the patented rotating disc cylinder mechanism, takes care of the mechanical security at your site, while electronic CLIQ technology allows flexible control of keys, access rights and audit trails. PROTEC² CLIQ combines both technologies into one effective solution.

▶ AN INTELLIGENT COMBINATION OF ELECTRONICS AND MECHANICS

Mechanical ABLOY PROTEC²

- Durable design without springs and pins
- Disc Blocking System – patented feature that stops attempts to manipulate the discs
- Bump proof and virtually pick proof
- The key and cylinder features are patented until 2031
- 1,97 billion different key combinations
- The symmetrical key can be inserted both ways
- Only one key needed for each user
- Reliable function in severe environments

Electronic CLIQ technology

- CLIQ technology which is especially designed for locking industry provides unique identification for every opening through encrypted communication
- Battery inside the key provides wireless function of time and calendar with complete audit trail
- Calendar and time-based access rights are easy to change remotely
- Mechanical system is easily and cost-efficiently expandable with CLIQ properties

ABLOY CLIQ Web Manager for easy management

Browser-based CLIQ Web Manager allows to change access rights whenever and wherever required.

Manage the system remotely with ABLOY CLIQ Web Manager software
 – define validity and access rights of keys.

Access rights are updated in the WallPD or MobilePD on locations mounted all around the world.

After updating the rights, keyholders have access everywhere they need, using a single key.

Applications

PROTEC² CLIQ is used among Professional End Users such as utilities, telecom, petroleum, transportation, hospitals, governmental institutions, banks and museums and railways.

KEYS

The PROTEC² CLIQ key has a metal shaft and a plastic bow which holds the electronics and battery. All PROTEC² CLIQ keys are equipped with a realtime clock and a memory to allow time-based functions and collection of audit trails. The battery lifetime of a PROTEC² CLIQ key is up to 10 years operation and the battery is easy to change by opening the plastic cover.

• PROTEC² CLIQ keys indicate operation to user with a buzzer and a LED that can be found from both sides of the key.

• All PROTEC² CLIQ keys are capable of housing an RFID chip with an additional RFID cover. This enables the same key to be used with access control systems.

• All keys are IP57 certified. Use temperature for the key is -10°C - ... +50°C

Normal user key TQ406

Normal user key is capable to open all PROTEC² CLIQ cylinders electronicly if the electronic group in question is programmed in the cylinder. Access rights are managed by programming the allowed, and denied keys or key groups in the cylinder memory. Access rights are programmed initially at the factory according to locking plan. They can be changed afterwards with a programming key.

• Audit trail of last 2000 events
• Audit trail of last 20 events from cylinders
   in other systems

Dynamic key TQ407

Dynamic key has same features as normal user key TQ406. Unlike normal user key, for which access is set in the lock side, dynamic keys have a list of locks or lock groups that is set from CLIQ Web Manager. This allows flexible access management as the key can be remotely programmed to open only the required locks which are needed at the time.

• Audit trail of last 2000 events
• Audit trail of last 20 events from cylinders
   in other systems
• A list of 3500 authorized locks or lock groups

ABLOY® PROTEC² CLIQ products

Programming key TQ403

Programming key is used as a credential to access the CLIQ Web Manager software. Administrator can create programming tasks and carry them to the cylinder with a programming key. Also cylinders´ audit trails can be retrieved with a programming key.

• 770 tasks can be loaded in one go
• 1000 audit trail events can be read in one go

OPERATION INSTRUCTIONS

Use the cylinders with the key in a normal way, like using mechanical cylinders.
After inserting the key into the cylinder´s keyway wait the sound signal before starting to turn the key. Signals are:

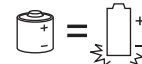| 1 Beep	3 Beeps	3 Long Beeps	No Beep
OK	STOP / 🕐	🔋 = 🔋 / ❄	🔋 = 🔋
Key accepted, the lock can be opened after the beep	The key is denied, it is unauthorized by either code or time	The battery may be weak or cold (try warming the key in your hand).	If there is no beep, try again. The battery can also be dead and needs replacing. In that case the lock cannot be opened. Please contact the system administrator.

To ensure proper function of your PROTEC² CLIQ key, please note following precautions:

			MAX +50°C MAX -10°C		
Avoid dropping the key.	Keep the key away from dirt and moisture.	Do not use excess force on the key to pull doors open with it.	Avoid exposing the key to excessive heat or coldness.	Changing the battery only by professional ABLOY dealers or locksmiths.	Incorrect lubrication is harmful for cylinder electronics. Use only ABLOY oil.

PROGRAMMING DEVICES

PROTEC² CLIQ keys can be updated locally via the local programming device when the key is handed to the user, but also remotely with the remote programming devices. Remote features allow collection of audit trails, updating key's access rights, schedules and enables the use of key revalidation.

WallPD PDA100

PDA100 WallPD is an indoor remote programming device which connects to the CLIQ Web Manager system via Ethernet. The communication between CLIQ Web Manager system, WallPD and the PROTEC² CLIQ key is encrypted for maximum security. WallPD can be powered with an external power supply or via Power-over-Ethernet.

• Wall mounted remote programming unit
• Locking system specific
• Transferring data between CLIQ Remote server and
   PROTEC² CLIQ user key securely
• No data storage
• IP42 rated
• LAN connection
• Power through 12-24 voltage adapter or PoE (Power over Ethernet)

MobilePD PDA200 & PDA210

MobilePD is a portable and personal programming device which is an optimal choice for a keyholder when PROTEC² CLIQ key needs to be updated in various locations. MobilePD acts the same way as the WallPD regarding key update, but gets power from AAA-batteries and connection to Internet via a mobile phone (Bluetooth) or laptop (USB).

• Powered by standard 4x AAA batteries
• PDA200 Bluetooth & USB (for mobile phone and PC)
• PDA210 USB only (PC)

Outdoor WallPD PDA120

Outdoor WallPD is a remote programming device which can be installed outdoors and in hostile locations. Like the WallPD, outdoor WallPD connects to remote server via Ethernet and supports PoE.

• IP57 Water & dust protection
• IK9 Attack resistance

ABLOY® PROTEC² CLIQ products

CLIQ reader TQ124

The CLIQ reader is a relay-controlled device which sends a signal to other devices or systems such as electric locks or alarm systems. CLIQ reader can be installed outdoors as it fulfills IP53 rating. It has an PROTEC² CLIQ cylinder inside thus it accepts only a key with correct access rights.

The housing of the CLIQ reader is installed outdoors next to the entrance. It is wired with the relay box which can be installed inside the door leaf. Relay operation is performed only when a key has correct access. Also the reader can be programmed with a programming key to update the list of blocked keys and perform other cylinder programming tasks.

• Power input 12-24 VDC -10 / +15%
• Power consumption 60mA
• Relay load max. 0,8A 30V AC/DC resist 20W
• Max. 1 meter length of the wire between escutcheon and electronics.
• Note to cut the cable to proper length, do not extend the cable.

WallPD with reader PDA110

The PDA110 consists of 2 parts. It is a WallPD with a reader attached. The WallPD is installed indoors while the reader, which has IP53 rating, is installed outdoors next to the entrance door. The reader is attached to the Wall PD with a 2 meter cable.

• Maximum wire length 2 meters
• Inside unit specs same as PDA100

LocalPD PDA500

PDA500 is a PROTEC² CLIQ key programming device which is connected to a PC. LocalPD is used both to authenticate administrators to CLIQ Web Manager system with the programming key and to program PROTEC² CLIQ keys locally.

• USB connection to PC
• Requires drivers (plug-and-play installation)

CYLINDER FUNCTION

ABLOY PROTEC² CLIQ cylinder contains mechanical cylinder structure of unique PROTEC² structure with nine discs. In addition the cylinder contains PROTEC² CLIQ cylinder electronics which controls electronic blocking system. This electronically controlled cylinder blocking is realized by using a small electric motor to guide the turning of one detainer disc. Cylinder has no electric power. This means no need of wires or battery change to the cylinders.

PROTEC² CLIQ key structure allows it to operate not only the PROTEC² CLIQ electronic cylinders but also mechanical PROTEC² cylinders with eleven discs. PROTEC² CLIQ key bow contains key electronics and battery to power the functions of the cylinder and the key itself. Electronic communication between the key and the cylinder happens via bipolar galvinc contacts. The key shaft itself functions as one pole the other one being an insulated metal strip on the side of the key shaft. Also the power to carry out the cylinder´s functions, is supplied via these contatcts.

When a key is inserted into a cylinder, the electronic communication is activated between the key and the cylinder. If the key has authorisation to open the cylinder, the battery in the key powers the opening and closing function of the electronic blocking of the cylinder. Both cylinder audit trail and key audit trail are stored simultaneously.

CYLINDER MEMORY

• 600 authorized key groups and programming keys together, theoretical maximum 65535 keys in each group
• A list of 2500 denied keys
• Audit trail of last 1000 events
• Audit trail of last 20 events from keys in other systems
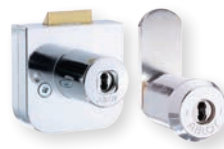
Wide product range - one key fits all

Robust and IP68 classified padlocks with CLIQ functionality for the harshest conditions.

Suitable lock cylinders for every door. Available also with dust protection.

Cabinet locks and cam locks with or without CLIQ.

Key deposits for storing route keys securely.

ABLOY® CLIQ Web Manager

CLIQ Web Manager (CWM) is a web-based software that enables the management and control of PROTEC^2 CLIQ system enabling full control over access authorizations and keyholder activities.

BASIC FEATURES

Triple authentication login

- Local programming device to access CLIQ Web Manager application
- Master programming key with PIN protection
- HTTPS valid certificate installed in the web browser

Manage users

- Create, import and edit keyholders

Manage keys

- Hand out and hand in keys to users
- Report key lost
- Report key broken
- Search and view key status

Manage cylinders

- View and edit cylinder information (e.g. location)
- Report cylinder broken
- Edit cylinder status (in stock, installed)

Manage access rights

- Add, edit and remove access rights for keys and cylinders

Manage validity and schedule settings

- Possibility to use revalidation for keys
- Set key validity (inactive, active or active for a time period)
- Possibility to create weekly schedules

Audit Trails

- Possibility to collect audit trail data from every cylinder and key in a locking system

Receipts and reports

- Print receipts of key hand out and hand in
- Print reports of keys, cylinders, persons, Remote PDs and audit trails

Remote key programming

• Change authorized cylinders for dynamic keys
• Change validity and schedule settings
• Collect audit trails automatically
• Automate key revalidation

Integrations

• Possibility to integrate CLIQ Web Manager with customers' own IT systems through SOAP Web Services interface.

ADVANCED FEATURES

Domain

is an administrative grouping feature which allows control over the specific parts of a locking system where administrators have access to. A domain consists of a set of cylinders or cylinder groups typically associated with a geographic or administrative region. Programming keys associated with a domain are only given administration rights for the included cylinders.

Cylinder Group

is a set of cylinders which is used to simplify the administration in locking systems with many cylinders. Access can be given to a cylinder group in the same way as to a single cylinder. Combinations of cylinder groups and single cylinders can be used to create higher flexibility.

Access Profiles

are used to give people who have specific roles the required accesses without having to configure each key individually. Keys and keyholders can be associated to access profiles. The access profile then determines where the assosiated keyholders and keys have access to.

Key revalidation

is a feature ensuring that keys are updated at certain time intervals. With key revalidation, keys must be inserted in a RemotePD ("revalidated") at specified time intervals to stay active. Once revalidated, the key stays active for the number of days, hours, and minutes specified as the revalidation interval, counting from the time it was revalidated. If a key is not revalidated within the specified interval, it becomes inactive until it is revalidated again.

Offline update

is a function that enables keys to be revalidated through a RemotePD even if the device has temporarily lost its network connection. This is useful in situations when it is critical that a key can get its validity extended even if the network connection is unstable. Updates of accesses cannot be made in offline mode. Offline Update is configurable per RemotePD.

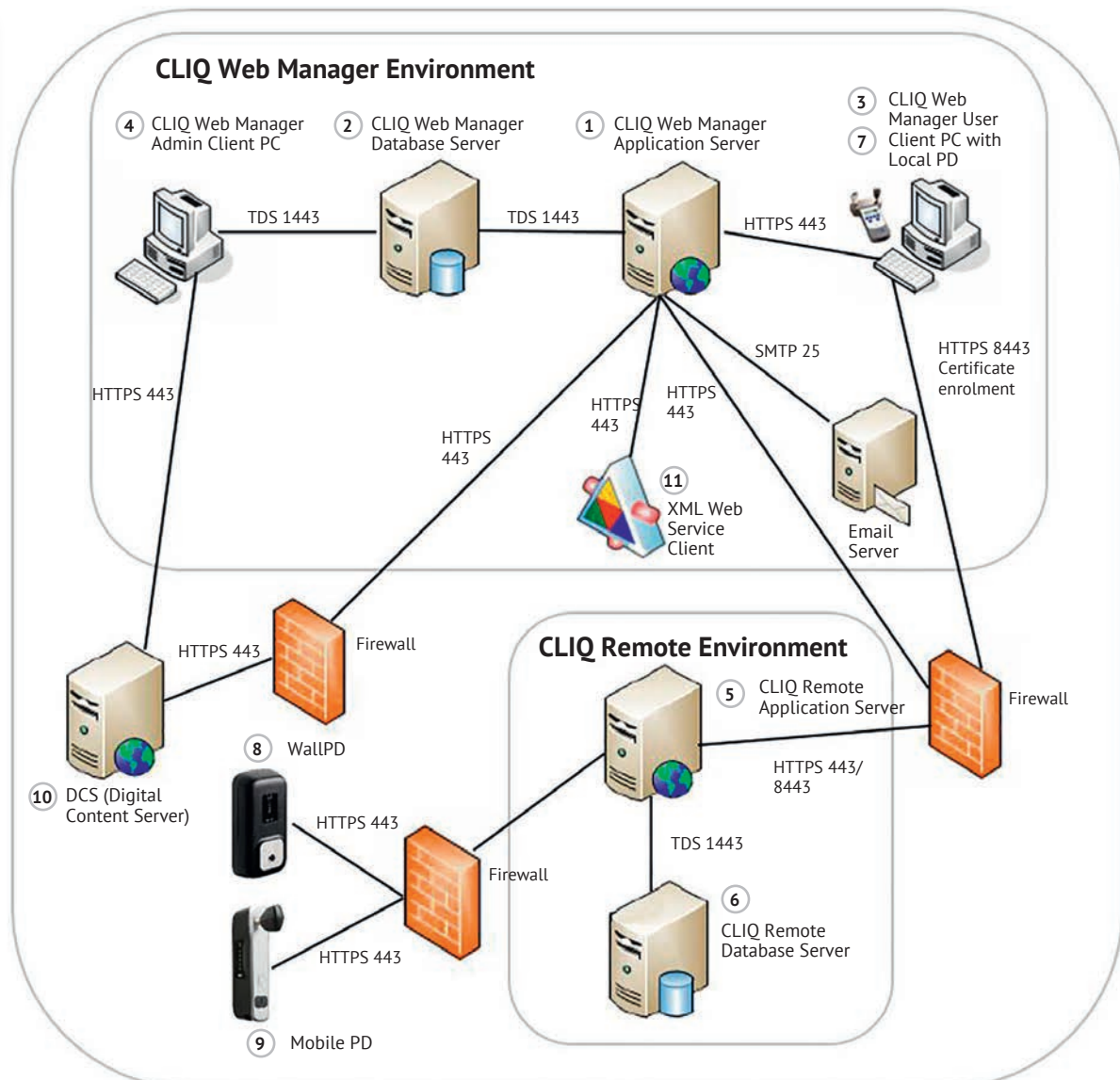# ▶ INSTALLATION

Software as a Service

Software as a Service means that installation and maintenance of CLIQ Web Manager is provided as a service by Abloy Oy. Software upgrades, backups of databases and importing extensions to locking system are all provided by Abloy. CLIQ Web Manager software is ready to use after the customer's client PCs have been installed.

Customer's own in-house installation

System is installed to customer's own servers and locking system is hosted by the customer. Customer is responsible of installing the system, upgrading the software, maintaining the servers, taking backups of databases and other maintenance tasks such as software version updates and installing extensions. Customer needs to purchase the required third-party SSL certificate for CLIQ Web Manager server:

• The SSL certificate used by CLIQ Web Manager has to be issued by a certificate authority (CA) that is trusted by the client web browsers. Examples of SSL certificate CAs are VeriSign, GeoTrust, Thawte, Comodo and RapidSSL. Contact the CA of your choice for instructions on how to purchase an SSL server certificate.

Recommended setup of customer's own in-house installation

CLIQ Web Manager Environment

4 CLIQ Web Manager Admin Client PC
2 CLIQ Web Manager Database Server
1 CLIQ Web Manager Application Server
3 CLIQ Web Manager User
7 Client PC with Local PD

TDS 1443
TDS 1443
HTTPS 443
SMTP 25
HTTPS 8443 Certificate enrolment
HTTPS 443
HTTPS 443
HTTPS 443
HTTPS 443

11 XML Web Service Client
Email Server

HTTPS 443   Firewall

CLIQ Remote Environment

5 CLIQ Remote Application Server
Firewall
HTTPS 443/ 8443
8 WallPD
10 DCS (Digital Content Server)
HTTPS 443
TDS 1443
Firewall
6 CLIQ Remote Database Server
HTTPS 443
9 Mobile PD

ABLOY CLIQ WEB MANAGER ENVIRONMENT CONSISTS OF THE FOLLOWING ELEMENTS:

1 CLIQ Web Manager Application Server runs CLIQ Web Manager software and is connected to CLIQ Web Manager Database Server with information about all CLIQ elements, access lists, audit trails etc.

2 CLIQ Web Manager Database Server is a server where the database for CLIQ Web Manager is installed.

3 CLIQ Web Manager User Client PC is a PC, which is used by administrators of CLIQ locking systems to access the CLIQ Web Manager application.

4 CLIQ Web Manager Admin Client PC is a PC, which is used to administrate locking system data in the CLIQ Web Manager database and to manage CLIQ Web Manager installations.

5 CLIQ Remote Application Server handles remote update of keys. Key update jobs are sent from CLIQ Web Manager server to the CLIQ Remote application server. The update jobs are stored in a database until they are executed from the Remote PD.

6 CLIQ Remote Database Server is a server where database for CLIQ Remote is installed.

7 LocalPD is a programming device connected to computers enabling access to CLIQ Web Manager application. LocalPD is used for login and programming keys.

8 WallPD is a programming device, which is used to program keys. WallPDs are mounted on walls and are connected to the remote server via a wired network. The WallPD enables programming of keys at a location remote to the administrators who are issuing key authorizations using CLIQ Web Manager application.

9 MobilePD is a programming device similar to the WallPD, with the difference that it can connect to the remote server via a mobile network.

10 Digital Content Server (DCS) is hosted by ASSA ABLOY AB and it manages and delivers digital content, such as certificates and licenses, to the installations securely. DCS integration is enabled in Abloy hosted CLIQ Web Manager environments automatically. In case of customer's own in-house installation DCS integration is enabled during installation.

11 XML Web Service client integrates CLIQ Web Manager with customers' own IT systems through SOAP Web Services interface.

Minimum setup of customer's own in-house PROTEC² CLIQ installation

- CLIQ Web Manager application server
- CLIQ Remote application server
- Database server

Servers can be physical servers or virtual machines.

NETWORK CONNECTIONS AND PROTOCOLS

User client PC	← HTTPS (TCP Port 443) →	CLIQ Web Manager Server
Remote PDs	← HTTPS (TCP Port 443) →	CLIQ Remote Server
CLIQ Web Manager Server	← HTTPS (TCP Port 443) →	CLIQ Remote Server
CLIQ Web Manager Server	← TDS (TCP port 1433) →	Database Server
CLIQ Remote Server	← TDS (TCP port 1433) →	Database Server
CLIQ Web Manager Server	← SMTP (TCP port 25) →	Email Server

Digital Content Server (DCS) is hosted by ASSA ABLOY AB and it manages and delivers digital content, such as certificates and licenses, to the installations securely. DCS integration is enabled in Abloy hosted CLIQ Web Manager environments automatically. In case of customer's own in-house installation DCS integration can be enabled during installation.

If DCS integration is enabled the CLIQ Web Manager Enrolment application will be installed to CLIQ Remote server (standard case) or CLIQ Web Manager application server depending on the type of the CLIQ Web Manager installation. The following firewall configurations are required for DCS integration.

For installations where both CLIQ Web Manager and CLIQ Remote servers are installed (supports CLIQ Remote systems) CLIQ Web Manager Enrolment application is installed on the CLIQ Remote server
• Outgoing traffic on TCP port 443 from the CLIQ Web Manager server to the Internet
• Incoming traffic on TCP port 8443 on the CLIQ Remote server for user client PCs to access the enrolment application

For installations where only CLIQ Web Manager server is installed (CLIQ Remote functionalities not supported) CLIQ Web Manager Enrolment application is installed on the CLIQ Web Manager application server
• Outgoing traffic on TCP port 443 from the CLIQ Web Manager server to the Internet
• Incoming traffic on TCP port 8443 on the CLIQ Web Manager server for user client PCs to access the enrolment application

SECURITY

ABLOY PROTEC² CLIQ security is based on mechanical key system combined with electronic access rights. On top of this certificates are used to authenticate elements of the system and all data between keys, cylinders, remote programming devices and CLIQ Web Manager is encrypted.

- A master key system can be mechanically keyed alike – but still always different to other master key systems.
- CLIQ elements are always programmed at the factory.
- Data between key and lock is encrypted in 3DES.
- Data transfer in CLIQ Web Manager is SSL encrypted.
- Protocols in use:
    - TDS, between database server and web server.
    - HTTPS, between web servers (AES 256 bit).
    - HTTPS, between Client PC and Web Manager web server (At least AES 128 bit).
    - HTTPS, between RemotePDs and Remote web server.
- CLIQ secure data is stored encrypted in the CLIQ Web Manager database using AES 256 bit. Data between CLIQ Web Manager client and a CLIQ key are encrypted using 3DES 128bit.

INTEGRATIONS

CLIQ Web Manager integrates with customers' own IT systems through SOAP Web Services interface. Integration enables seamless operation between CLIQ Web Manager and e.g. customer's HR, access control and reporting systems.

Web Service access is controlled by use of locking system specific client certificate. Connection to the Web Service is done over SSL and all data is encrypted during transfer.

There are currently three different services available: Import Service, Query Service and Work Service. The Import Service is used to import/edit person data. The Query Service is used to get information about the locking system, such as key, cylinder or audit trail data. With the Work Service it is possible to perform operations, such as issue validity and authorized cylinder updates for keys.

Full set of API documentation and WSDL definitions is available from Abloy Oy.

SUPPORT

Abloy offers standard support for CLIQ Web Manager during Finnish office hours 8 a.m. - 4 p.m. Standard support is available in English and Finnish by phone and email.

24/7 support contract for CLIQ Web Manager is available at additional cost. 24/7 support contract offers support for CLIQ Web Manager outside of Finnish office hours. 24/7 support is handled by global English speaking support and the reported issues will be answered within 4 hours, 24/7.

CLASSIFICATIONS AND STANDARDS

IP classification, IP68 designation	**EN 60079-0 and EN 60079-11** ATEX approval	**EN 1303:2005 and EN 15684:2012** Grade 6	**SFS 5970/7020** class 1 and class 3
IP codes indicate how well an item is protected against dust and water ingress. The IP68, the highest designation indicates a hermetic seal.	The ATEX approval indicates that the products can be used in areas which contain any types of gases, vapours, ignitable dust or air*	Durability (number of cycles 100 000) and key related security (100 000 combinations)	Manipulation and physical attack

*the ignition temperature of the hazardous substances must not be below 135 °C

ATEX APPROVED

An Ex approval in accordance with EN 60079-0 and EN 60079-11 has been granted for CLIQ technology products. The approval indicates that the products can be used in areas which contain any types of gases, vapours, ignitable dust or air. However, the ignition temperature of the hazardous substances must not be below 135 °C. The products are industrial equipment and thereby belong to apparatus group II. The products are classified in apparatus category 2, and are therefore intended for areas (zone classifications 1 and 21) where, under normal use, an explosive mixture of air and the previously mentioned substances is rare. The products shall not be used in areas where an explosive mixture is present frequently, continuously or over a longer period.

PROTEC² CLIQ is not ATEX approved locking system as standard. ATEX products and maintenance is defined in a variety of requirements.

PROTEC² CLIQ ATEX locking system requirement are:
- Locking system plan is approved by Abloy
- CLIQ products are used only under the conditions of approval
- Whole locking system must be ATEX approved. Old locking system can not to be converted to ATEX system and ATEX system can not be converted to non ATEX system.
- All changes and additions to the locking system are made with approved ABLOY ATEX products, and the changes are registered in Abloy archive.
- All keys belonging to ATEX approved locking system are marked with EX. Cylinders do not have special marking.
- Declaration of conformity must be delivered to each customer with the offer