CHEREAU

INNOVATION DRIVES YOU FORWARD

SmartOpen-C

User and maintenance manual

V 2.0

INNOVATION DRIVES YOU FORWARD

Read and understand this manual before using the SmartOpen-C.
It is imperative that this manual always be kept in the vehicle so that it can be consulted.

CHEREAU SAS
ZI Le Domaine – DUCEY – BP 700
50307 AVRANCHES CEDEX
FRANCE
Tel: +33 (0)2 33 58 06 00
E-mail: contact@chereau.com
www.chereau.com

CHEREAU reserves the right to modify the product at any time and without notice.

The photographs and diagrams in this manual are non-contractual; they are for the purposes of illustration and understanding the use of **SmartOpen-C**.

CHEREAU
INNOVATION DRIVES YOU FORWARD

Contents

Introduction

This user and maintenance manual contains all of the information you will need to:

- Understand the characteristics of the **SmartOpen-C** installed on your CHEREAU body.
- Understand the best operating conditions for this equipment.
- Maintain your equipment in optimum working condition and comply with the various user and maintenance instructions.

This manual must permanently be stored inside your vehicle and it must be made known to workers that may use the system.

We remind you that CHEREAU vehicles are intended to be used by transport professionals, whose responsibility it is to ensure that conditions of use comply with current local legislation.

The descriptions of the model presented in this manual were created from the technical characteristics known at the time this document was written.
The manual covers all of the existing equipment, its presence on the body depends on the version, the options chosen and the country it was sold in.

In order to guarantee the safety of transport and your personnel as well as the conservation of your products, it is recommended that you scrupulously follow the user and maintenance information in this manual.

Any modification or adaptation of this equipment must imperatively be subject to prior approval of CHEREAU.

CHEREAU reserves the possibility of making, without prior notice, modifications, adaptations and/or technical upgrades to improve the equipment.

Any inconsistency between the contents of this manual and the effective operation may be attributed to a version produced after this manual was written.

In this case, we ask you to contact CHEREAU in order to obtain updated information and data.

General information

The **SmartOpen-C**, electric thermally-insulated sectional door is an alternative to classic swinging doors and curtains located at the rear of refrigerated bodies intended for distribution.

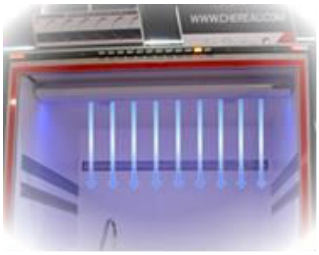
The innovation resides in an apron, in articulated thermally-insulated panels, which stows inside an external protection (hard-top) attached to the body's roof.

This solution completely frees up the inside load area under the roof, thereby facilitating the installation of:

MultiDeck-C

- A rear evaporator
- An **AirShutter-C** curtain
- A **MultiDeck-C** system
- **Easy-C** transverse moveable partitions
- Longitudinal partitions

And any other CHEREAU equipment located in the rear part of the body (except meat hangers).



AirShutter-C

This patented innovation offers other advantages:

- The outside part of the apron always remains outside the refrigerated compartment, limiting the risk of the intrusion of foreign bodies into the loading area.
- The rapidity of opening and closing facilitates loading and unloading of products and minimises temperature increases [1].
- A reduction in fuel consumption by the refrigeration unit.
- Improved vehicle aerodynamics by limiting turbulence at the rear of the body.
- Note that the **SmartOpen-C** emits less than 60 dB in utilisation (based on the PIEK certification TNO protocol for noise emission).
-

The SmartOpen-C participates in the maintenance of the cold chain and respect of food safety for transported products.

SmartOpen-C

[1] *Particularly if you combine the **SmartOpen-C** with the **AirShutter-C** function.*

Body identification

CHEREAU bodies are identified by a manufacturer's plate placed on the front panel of the body. This plate contains the type and model of the body, the serial number and the date of manufacture.

The manufacturing number of the body must be quoted in any correspondence with CHEREAU.

Presentation of the plate:

"Manufacturer's plate"

"Manufacturer's plate"

General safety pictograms

Obligation to wear “Personal protective equipment” and suitable work clothing to perform the operations.		Obligatory feet protection.
		Obligatory hand protection.
		Obligatory eye protection.
		Helmet recommended.
		Hearing protection recommended.
		Work clothing must be suitable. It is forbidden to wear loose clothing that could be caught in moving parts.
The risks present during the use of **SmartOpen-C**.		Hand and feet crushing risk.
		Risk of slipping or tripping inside the structure.
		Risk of bodily crushing – moving parts.
		General danger.
		Laser risk (class 3) – Closing obstacle detection cell.
		Risk of low temperatures inside the body.
		Electrical risk (48V DC).
Prohibitions		Unauthorised persons prohibited.
		Touching forbidden.

		Circulation forbidden.
		Open flames and smoking forbidden.

Safety instructions

Accidents that have occurred when using equipment or during maintenance operations are often caused by non-compliance with the safety instructions.

It is therefore important to be aware of potential risks and to pay particular attention to the various actions performed on your SmartOpen-C.

Damage caused by a failure to follow these user and safety instructions will free CHEREAU from any liability.

The user manual must be completely read and understood by the operator.

The **SmartOpen-C** must imperatively be used and operated by a trained and qualified operator.

The **SmartOpen-C** must not be operated in the presence of an obstacle that might block its lifting or lowering movement.

.

Non-compliance with an operating procedure that might impact or affect the physical safety of the operator and/or any bystanders releases CHEREAU from any liability.

It is strictly forbidden to modify the settings, the structure or the safety elements of your equipment.

The responsibility of CHEREAU and the guarantee will be voided in the case of non-compliance with the user and maintenance instructions.

The responsibility of CHEREAU and the guarantee will be voided if the operator does not use original parts for maintenance operations.

The operator must wear suitable work clothing and avoid loose clothing that may become entangled in moving parts of the **SmartOpen-C**.

The operator must be an adult.

The operator must monitor their environment during opening and closing operations.

The operator must ensure that nobody is in the refrigerated area during the **SmartOpen-C** closing phase.

The operator must wear “Personal Protective Equipment” when using the **SmartOpen-C**.

The operator must notify and inform CHEREAU of any anomalies and/or malfunctions observed.

It is strongly recommended that you not move the vehicle while the **SmartOpen-C** is open.

The operator must protect the **SmartOpen-C** from aggressive or stripping products, open flames and mechanical shocks.

The maintenance and inspection work must be performed by technicians qualified and trained by CHEREAU Services.

The operator must comply with the maintenance protocol and the user manual.

Risks and dangerous areas

The operator must permanently have a clear view of the working area and attentively observe all movements during the opening and closing phases of the equipment.

The operator must ensure that the area is completely clear so as not to block or hinder the movement of **SmartOpen-C** during the lifting and/or lowering phases.

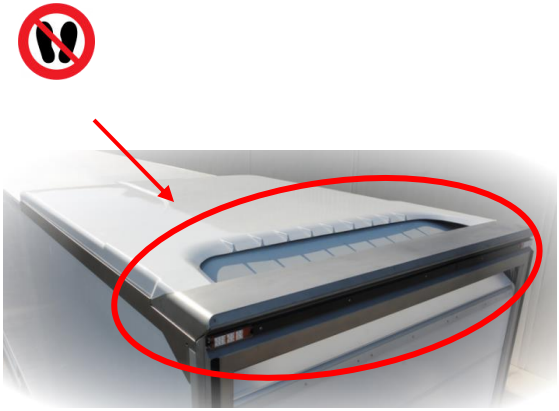
The operator must imperatively remain outside the movement area of the SmartOpen-C during operations when the curtain is opening and/or closing.

The operator must not operate the equipment if there is anybody inside the body or on the roof.

The operator must not operate the **SmartOpen-C** with the inside control when they are outside of the body.

The operator must not climb and/or walk on the hard-top.

The operator must not open or manipulate the hard-top when the **SmartOpen-C** is operating.



Remain outside of the **SmartOpen-C** movement area.

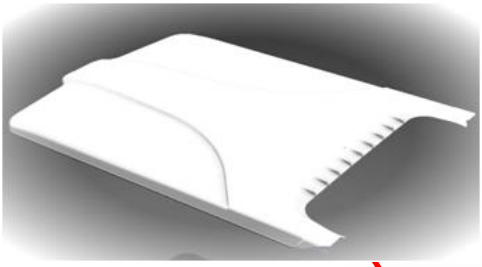
Check the inside and outside environment before operating the **SmartOpen-C**.

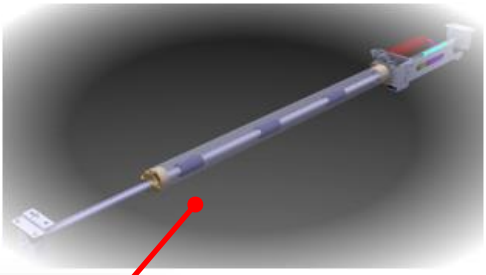
Knowing the **SmartOpen-C** and understanding its operation

Presentation

The **SmartOpen-C** is rear insulated closing system for semi-trailers and rigid bodies.

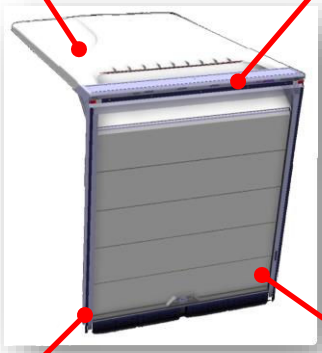
Its architecture can be broken down into 4 subassemblies and a specific vehicle interface.

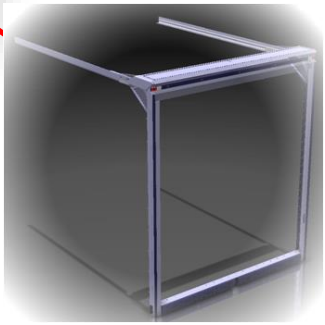




Protective hard-top

Electronically controlled motor





Articulated apron

Mechanically welded support structure

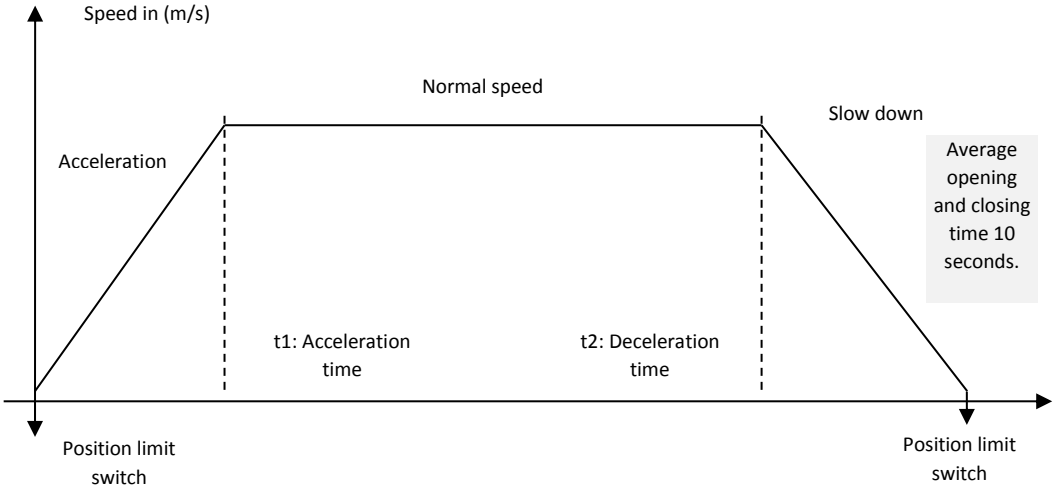
Description of main components

➔ **The motor and mechanical transmission**

The motor and the electronic control module of the **SmartOpen-C** are located in the upper rear frame of the body.

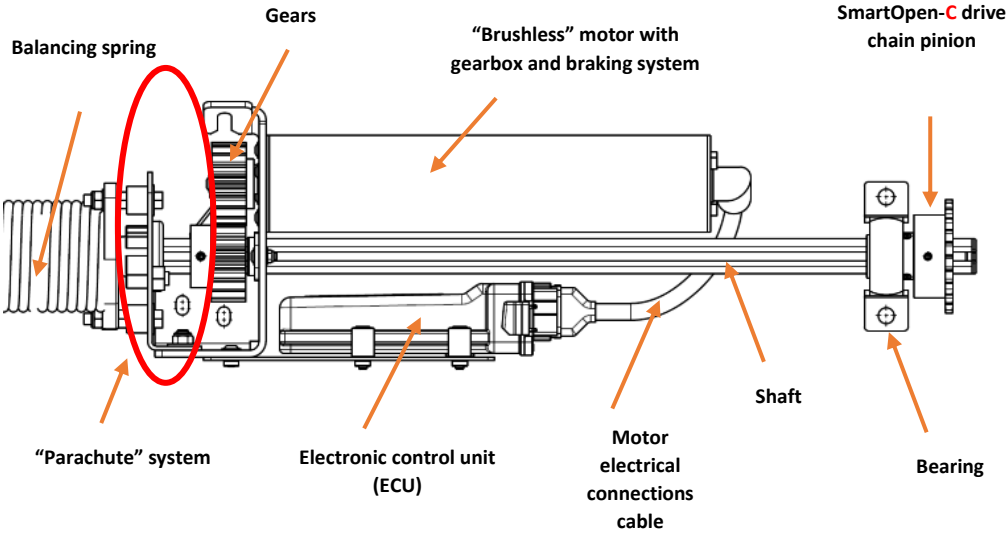
The maintenance and inspection operations are performed via a pivoting stainless steel cover in the upper part of the rear frame. This area is reserved for personnel qualified and trained by CHEREAU Services.

The electronic positioning system (ECU) optimises the speed cycles of the **SmartOpen-C** in accordance with the following diagram:

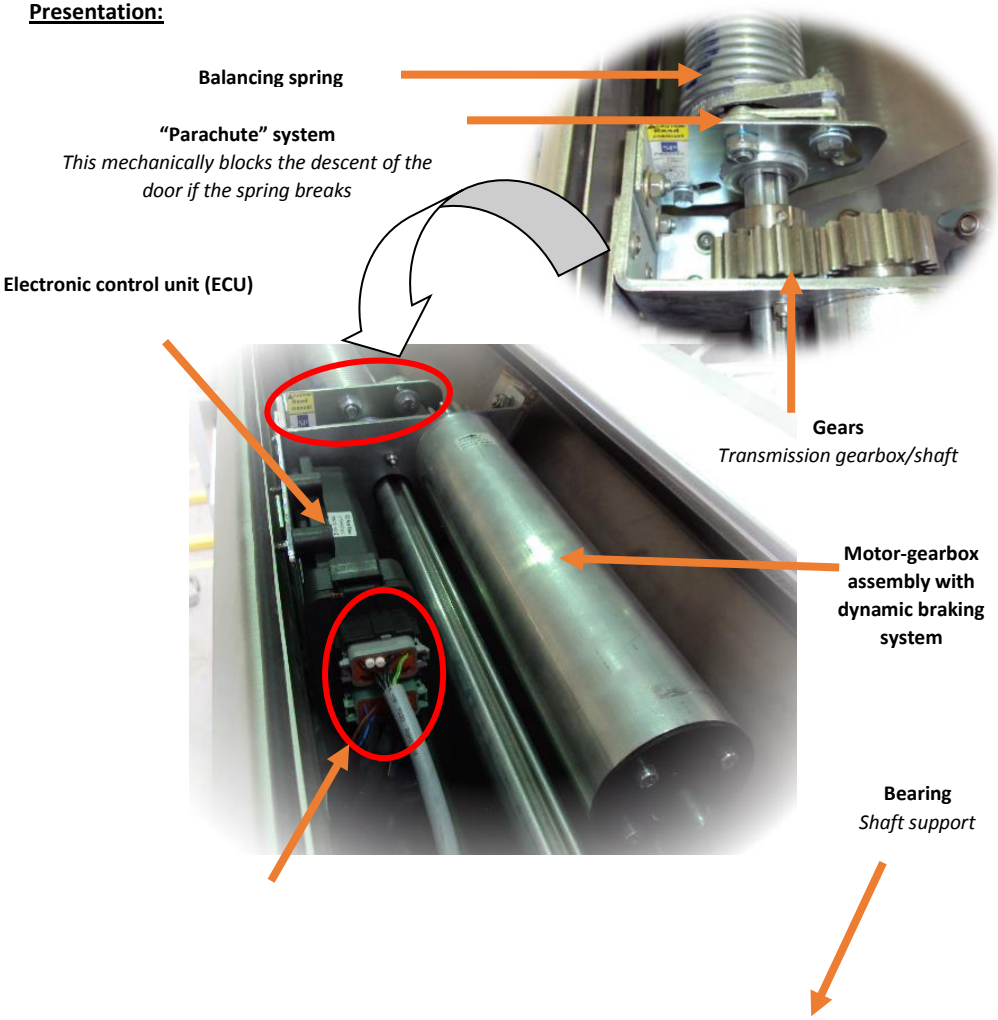


The electronic system (ECU) includes the **SmartOpen-C** movement control to limit the abnormal mechanical forces and thereby increase the life expectancy of your equipment.

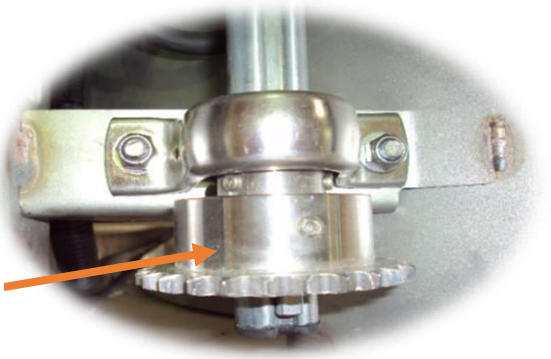
Motorising diagram:



Presentation:



Control and power circuits and peripheral cell connections to the control module
(End stop, obstacle detection, lock-out information)



Apron drive pinion (by chains)

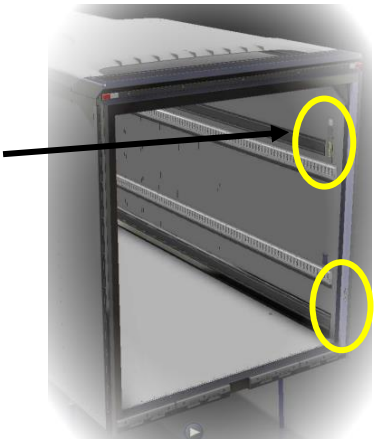
Description of main components

➔ **The user interface**

The user interface (Human/Machine Interface or HMI) includes a main control panel located on the upright of the rear frame and, optionally, an identical secondary control panel set into the insulated side of the bodywork.

- ⇨ Status indicator - ACTIVE ● INACTIVE ○
- ⇨ Function controls - Raise ▲ / Lower ▼ connected to position indicators

Inside interface
(option)



Outside interface
(Base package)

Remote control (optional):

Adding a remote control to allow the use of **SmartOpen-C** at a distance is possible.

See "Basic equipment and options" (page 24)

Operation of the SmartOpen-C

The **SmartOpen-C** is activated as follows:

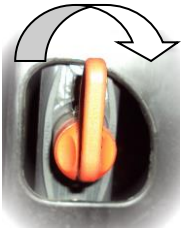
- **Rigid body** ➔ Switch located in the cab

  A "**door open**" indicator is incorporated into the vehicle dashboard. This varies according to the vehicle make.

  Example of an indicator in a Renault / Volvo vehicle ➔

  In the case where there is no indicator on the dashboard, a **red light** is incorporated into the centre part of the control panel.

- Semi-trailer ➔ Switching on and activating is performed with the vehicle battery shut-off, located near the batteries.



When the SmartOpen-C is not used, the electronic system goes into standby mode to limit electrical consumption in the vehicle.
The system is reactivation is completely transparent when one of the buttons is pressed on the HMI.

Time to go into standby mode[2]	
Door closed	1 hour
Door open	30 minutes

On activation of the **SmartOpen-C**, the electronic system (ECU) performs a complete self-diagnosis of its operating condition then waits for a command

Status indicator

Position indicators
Steady blue lights:
Door at the top or bottom limit position
Blinking blue lights:
Door moving

In the low position, a **press** on

The raise function opens the door:

1 press ➔ **Complete opening** of the **SmartOpen-C**

If the raise button is pressed a 2nd time while the door is opening
➔ **The SmartOpen-C stops in the current position**

3rd press ➔ **The SmartOpen-C continues to open**

In the high position, a **press** on

The lower function closes the door:

1 press ➔ **Complete closing** of the **SmartOpen-C**

If the button is pressed a 2nd time while the door is closing
➔ **The SmartOpen-C stops in the current position**

3rd press ➔ **The SmartOpen-C continues to close**

[2] *After going into standby, the door stays in the same position but becomes manually operable.*

SmartOpen-C inactive

Controls unavailable

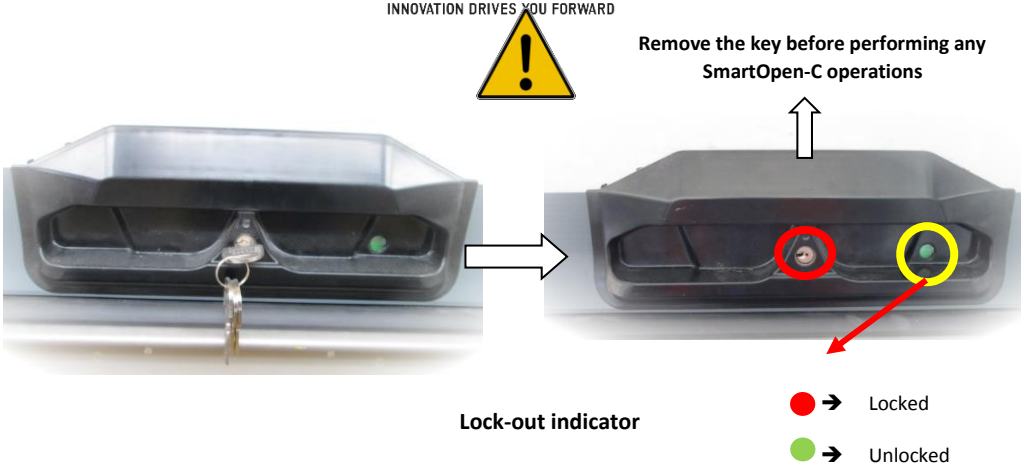
SmartOpen-C active

Controls available

Note:

If the sectional door is equipped with a key lock, you must unlock it before starting any operation of the SmartOpen-C.

You must imperatively remove the key before any opening/closing cycle.



The user interface indicators

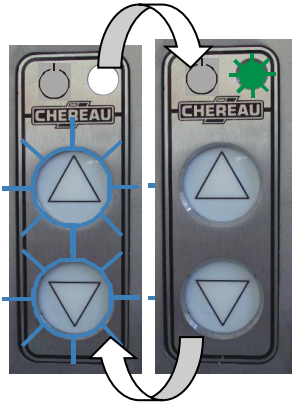
The status and position indicators on the Human Machine Interface give the user information about the operation or any anomaly of the **SmartOpen-C**.

IN OPERATING MODE		
Indicator status	**HMI**	**Meaning**
Status light off ○		**SmartOpen-C inactive.** Controls not available.
Status light lit ●		**SmartOpen-C active.** Controls available.

Position lights lit, steady blue.		**SmartOpen-C at top or bottom limit.** Completely open or closed.
Position lights lit, slow blinking blue		**SmartOpen-C moving or stopped** In an intermediate position.

IN DEGRADED MODE OR IN THE CASE OF AN ANOMALY		
Indicator status	**HMI**	**Meaning**
Position lights both blink quickly.		**SmartOpen-C reinitialising.** Repositioning at slow speed. ⇨ The system will return to full speed after a complete close or open. *If not, check whether the HMI is sending a fault code and contact your CHEREAU service point.*
Series of "flashes" of the three lights.		**-Fault-** Anomaly detected. ⇨ The number of flashes identifies the origin of the fault. *See below.*

Number of flashes	Fault origin
1	Battery voltage fault – battery low.
2	HMI / End limit / Safety voltage fault
3	Internal current measurement fault.
4	End limit or motor fault.
5	Locking fault or inconsistency.
6	Electronics temperature fault.
7	Internal 12 volts fault.
8	Pushbutton fault.
9	Calibration fault.

IN CALIBRATION MODE		
Indicator status	**HMI**	**Meaning**
Position and status lights blinking alternately.		Learning of the opening travel (Calibration) may be necessary after a maintenance operation. ⇨ See the procedure described in the maintenance manual.

Anti-trapping protocol

When the **SmartOpen-C** is no longer electrically powered, either because of a loss of battery autonomy or a fault in the electrical part or a failure of the electronic module:

It is possible to operate the door manually from inside or outside of the body.

SmartOpen-C opening procedure in the case of trapping

1 Disengage the safety switch inside the body

Switch located 1.90 m high on the left side

If locking option is installed:

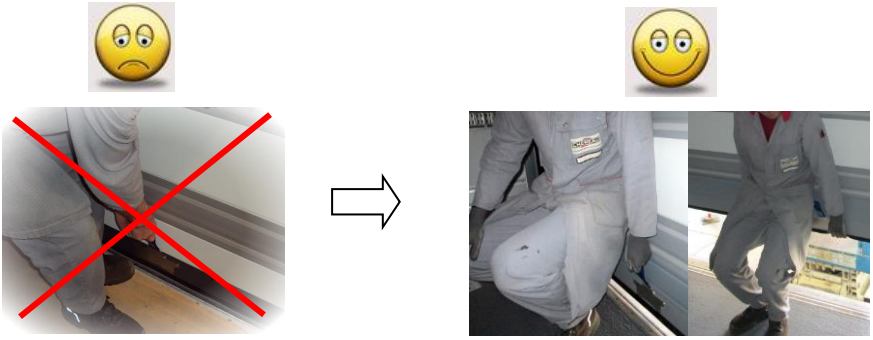
⇨ Open from the outside with the key.

⇨ Open from the inside with the handle.

2 Use the strap to raise the **SmartOpen-C**

3 Reengage the safety switch to turn the **SmartOpen-C** back on

- During this opening operation of the sectional door, take care to keep your back completely straight to limit the risks of “Musculoskeletal injury”.



- After this operation, it is **imperative** that all of the equipment is checked by qualified personnel in order to determine the origin of the fault and make repairs if necessary.

Operation in the case of the presence of an obstacle

This operating mode will be active in the case of an obstacle in the detection zone located at the rear frame threshold (see photo opposite)

If the light beam of the optic cell is broken, the system reacts identically to when it detects an obstacle. It is therefore important to check the following points:

- Cleanliness of the 2 closing obstacle detection cells, located in the lower part of the door (left and right risers).
- Alignment of the light beam between the transmitting and receiving cells.

In the case of detection of an obstacle during descent:

1. The movement is stopped.
2. The sectional door rises 20 cm.
3. The system waits and goes into standby mode.

Operation in the presence of an obstacle:

1 First clear the detection area and remove the obstacle before performing any operation.

2 Hold down the pushbutton on the HMI to fully close the door.

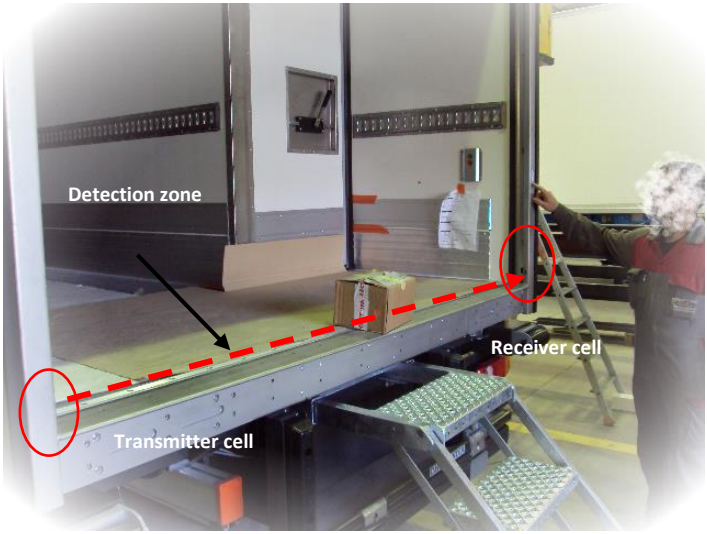
Pushbutton controls

⇩ **OR** ⇧

Press the pushbutton on the HMI to fully raise the door.

Note, this operation is performed under the control of the operator who must monitor all of their environment before starting any SmartOpen-C movements.

It is imperative to remove any obstacles that might block the movement of the sectional door or you risk damage to the structure or parts of your equipment.



Closing obstacle detection cells located
in the door risers.
(about 6 cm above the threshold)

Operating in degraded mode

The **SmartOpen-C** goes into degraded mode in the 3 following cases:

- ⇨ Detection of obstacles when closing the door.
- ⇨ Manual forcing of the **SmartOpen-C**.
- ⇨ Loss of power during a **SmartOpen-C** movement / battery fault.

In order to return to the normal operating mode, you must start the **reinitialisation** procedure (repositioning of the top and bottom limit system):

Reinitialisation procedure:

1- Press and release the **raise** button
OR hold down the **lower** button.

2- The **SmartOpen-C** apron will then raise or lower at reduced speed until it reaches its end stop.

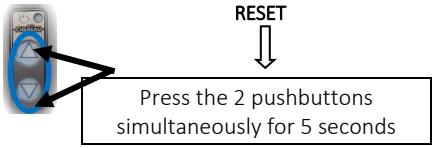
3- The **SmartOpen-C** then accepts its repositioning and will return to normal operation.

Pushbutton controls

*Please contact CHEREAU Services if the **SmartOpen-C** will not leave degraded mode.*

Electronic module (ECU) safety mode: mechanical blocking / motor current too high / over-voltage…

RESET (exiting -Fault- mode)
in the case of a fault detected by the electronic unit (ECU):
Identify and correct the fault then simultaneously press the 2 push buttons for 5 seconds.



Basic equipment and options

BASIC CONFIGURATION

BASIC	Raise and lower: Press the control button on the HMI Stop movement by pressing during ascent or descent. Stop at top or bottom limit. **Safety:** **Obstacle detection** by laser cells with release travel in the case of detection. **Anti-trapping**: safety switch placed by default at 1.90 m high inside the left side with a loop for manual opening. **"Enable" function**: deactivation of controls from the rigid's cab.	   

OPTIONS		
Option no. 1: **Outside key locking (with anti-trapping)**	Locking automatically deactivates the "door closed" electronic blocking and access to the user controls. **Anti-trapping safety:** Unlocking can be manually activated (without a key) from the inside	

Option no. 2: **Closing by holding down the button**	Raising of the sectional door by pressing. Raising stopped by a press or door reaching upper end-stop. Lowering by continuous holding of the button. Lowering stopped by releasing the button or door reaching lower end-stop. **No obstacle detection system**	
Option no. 3: **Internal control**	Control panel mounted by default 1.75 m high on the right inside face.	
Option no. 4: **Remote control**	Remote control cannot be separated from press (base) operating mode and the obstacle detection system. **Incompatible with option no. 2**	
Option no. 5: **Synthetic protective plate SmartOpen-C 140 mm**	It is recommended that you equip the bottom panel which is more exposed to shocks. Max. 4 rows distributed along the apron of the sectional door.	
Option n°6 : **Bouton WIRELESS**	Additional opening switch mounted at the bottom of the rear panel, allowing an opening when the impulse control is unattainable. **Incompatible with option no. 2**	

CHEREAU

INNOVATION DRIVES YOU FORWARD

Maintaining the **SmartOpen-C**

Handling the hard-top

It is possible to disconnect and slide the hard-top towards the front of the vehicle to clean the system and, in particular, the apron retraction area located on top of the roof.

This operation must be performed with the power off. You must imperatively open the battery circuit breaker after having raised the **SmartOpen-C** to the top position.

Fully open the **SmartOpen-C** and cut off the electrical power to allow cleaning of the assembly.

Manually open the motor cover.

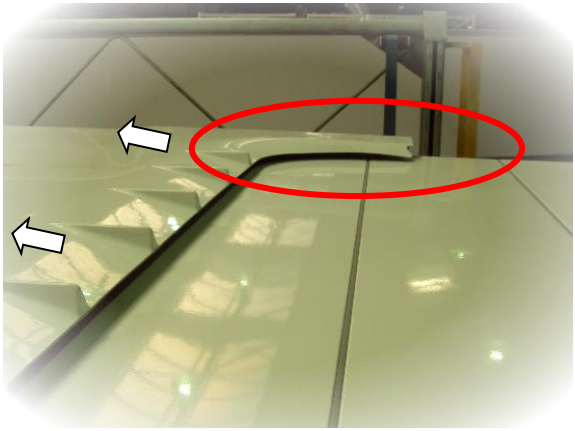
Work at height:
Use an approved platform for safe working.

Unscrew the 2 side hard-top attachments.

Place 2 suction cups on each side of the hard-top and move the assembly forward (towards the cab).

The operation must be performed by two operators, one on each side of the hard-top.

While it is moving:
ensure that there is no rubbing between the apron panels and the inside of the hard-top.
If necessary, slightly lift the hard-top while sliding it.



After the cleaning operation, replace the hard-top and lock the assembly.

↓

Reclose the cover by placing your hands on the upper part in order to avoid trapping your hands or fingers.

↓

Check all of the hard-top installation

↓

Close the motor cover with 2 screws (M8x30 stainless steel)

Switch the equipment back on and perform a complete **SmartOpen-C** cycle using the HMI controls to check the various movements.

ON

Final installation of the hard-top

Limits of use

Use in severe climatic conditions:

Snow:

When opening the door, it retracts into the protective hard-top. This equipment has been designed to withstand a distributed load of 200Kg, i.e. a thickness of 10 to 20cm of fresh snow (depending on its density).

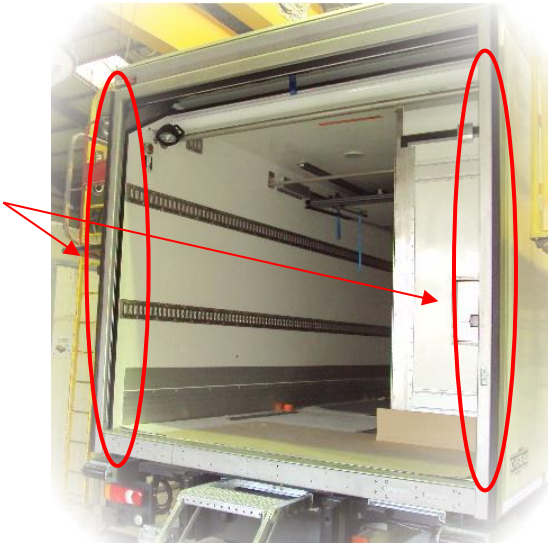
It is therefore recommended to remove accumulations of snow to prevent any rubbing of the door sections on the internal structure of the hard-top.

Use personal safety equipment and tools for working at height and remove the snow and ice.

Intense cold and freezing:

Below a certain temperature and formation of frost on the outside part of your equipment, it may be necessary to break the ice that has formed in the risers to free the movement for at least the first opening.

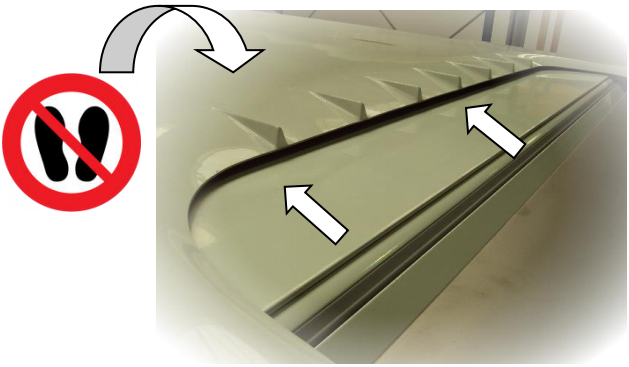
Icing zone to be cleared



Perform de-icing with a tool and/or aerosol suitable for your working environment.

Other:

- Do not walk on the protective hard-top.
- Check that nothing is obstructing movement of the door inside the hard-top.



- Do not use an open flame near the **SmartOpen-C**.
- Do not use a solvent to clean the **SmartOpen-C**.
- Limit movements of the vehicle with the door partly or fully open.

Cleaning

- ⇨ Only regular cleaning and maintenance guarantee the proper operation of the system and the level of cleanliness required for transport hygiene conditions.
- ⇨ The parts of the door most exposed to dirt are the joints, the sections and the **SmartOpen-C** hard-top. Particular attention must be paid to cleaning all of these elements of the equipment.
- ⇨ Washing operations must be performed with non-aggressive cleaning products (water hardness between 5 and 9 and a temperature less than 70°C).
- ⇨ The washing lances must be used at more than 30 cm from the surface of the bodywork and the pressure must not exceed 60 bars. Do not hold the spray excessively in one area, particularly the position (top and bottom end-stops) and obstacle detection cells, the cables and connectors and the decoration and stickers.

Products recommended for cleaning:

- ⇨ Hot water < 70°C
- ⇨ Mild soap detergents (pH<10)
- ⇨ Alcohol
- ⇨ Acid solutions (pH>2)

Products forbidden for cleaning:

- ⇨ Abrasive cleaning products
- ⇨ Strong alkaline solutions (Ammonia, Caustic soda, etc.)
- ⇨ Organic solvents (Acetone, etc.)
- ⇨ Chlorinated solvents (Trichloroethylene, etc.)
- ⇨ Aromatic solvents (Xylenes, Toluenes, etc.)

Cleaning the motor area with a high pressure lance is forbidden.
In the case of cleaning with a conventional water jet, check that the water is draining from the transmission chain passages located to the left and right of the housing.
In order to accelerate complete drying of the area, it is preferable to leave the cover open in an aerated location for several hours.

Before moving the vehicle or the body, it is imperative that the cover be closed using the 2 screws provided.

Maintenance operations to be performed

Rigorous maintenance performed by qualified personnel will maintain the performance of the **SmartOpen-C** and guarantee its life expectancy.

A lack of maintenance may make its use dangerous.

The maintenance operations depend on the number of hours the equipment is in use and must imperatively be performed by qualified and trained personnel.

Checks to be performed during the 1st week ➔ Take care to work safely by using a suitable platform.

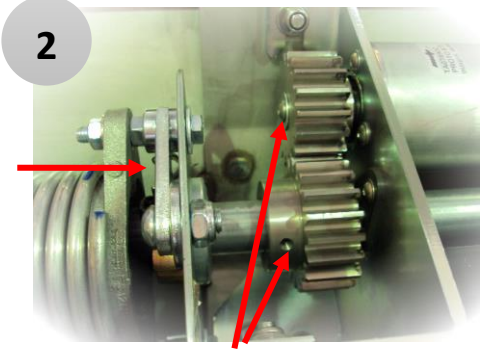
Operation no.	Operations to be performed
1	Check the condition and tension of the 2 stainless steel chains that open and close the sectional door. Check the tension of the two chain springs.
2	Check the clip + the return spring + the attachment pawl Check the motor pinions and the driveshaft + the proper balance of the assembly.
3	Check the stainless steel chain guides (chain anti-skip).
4	Check the general condition of the guide blocks.
5	Check the guide rail assembly.
6	Check the mountings of the bearings , the motor drive pinions and the chains.
7	Check the mounting of the electronic control unit (ECU), the connections and the cables.
8	Check the mounting of the “Top” and “Bottom” magnetic position cells.
9	Check the general condition of the balancer.

1

Stainless steel chain (2x)

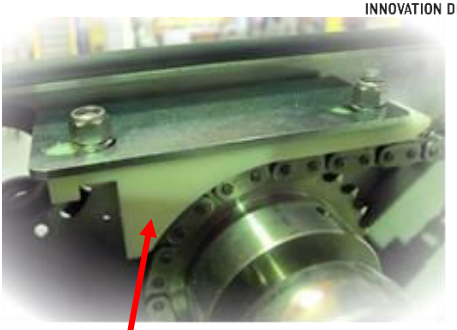
2

Return spring



Attachment of ‘motor’ pinions (1 axial screw) and ‘shaft’ (2 radial screws at 120°)

3



Chain anti-skip (2x)

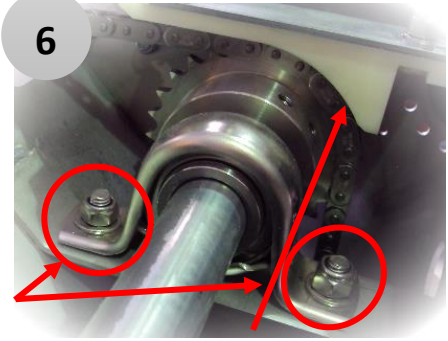
4

Guide rollers

5

Guide rail (2x)

6



Bearing attachment

Attachment of 'chain pinions'
(2 radial screws at 120°)

7

ECU attachment screw

Connectors

Attachment of electronic module and connectors

8

'Door at bottom' position cell

'Door at top' position cell

9

Balance spring

Average inspection time
➔ 30 minutes

Preventative maintenance plan

Point to be checked	Weekly	Monthly	Quarterly	6-month	Annual	Compliant	
						Yes	No
Check the operation and adjustment of the optical obstacle detection cell and clean it.	**x**						
Check the general cleanliness of the guide rails and perform a complete cleaning.	**x**						
Visually inspect the centring and levelness of the panels with respect to the rear frame.	**x**						
Check the operation of the mechanical door locking. (option)	**x**						
Perform a trapping test by applying the complete evacuation protocol.		**x**					
Check the condition and compression of the threshold seal.		**x**					
Check the general condition of the section connections. (Profiles, flexible hinges)		**x**					
Check the peripheral seals and perform maintenance.		**x**					
Check the general condition of the rear frame: Threshold / lintel / right and left risers.		**x**					
Check the general condition and cleanliness of the sections.		**x**					
Check the general condition of the hard-top and the latching system.		**x**					
Check the spring of the parachute (safety) system.		**x**					
Check the seals and structure of the **SmartOpen-C**.		**x**					
Check the condition of the rollers and their movement in the rails.			**x**				
Check the tension and general condition of the **SmartOpen-C** drive chains.			**x**				

Point to be checked	Weekly	Monthly	Quarterly	6-month	Annual	Compliant	
						Yes	No
Check the condition of the curtain drive chains tension spring.			**x**				
Check the mounting of the "Top" and "Bottom" magnetic position cells.			**x**				
Check the condition of the inside strap – No sign of wear and/or cuts.			**x**				
Lightly grease the chains by fogging.			**x**				
Grease the drive and motor pinions (light greasing).			**x**				
Check the general condition of the balancing spring – No oxidation – No wear – Tightness of the spring tension screw. « replace the balancing coil spring every 18 months (means approx. 13 000 cycles for 25 openings/day)				**x**			
Check the 2 bearings: Bearing mounting and visually check the condition of the bearings.				**x**			
Check the attachment of the cables and the connection elements.				**x**			
Check the general condition of the safety pawl of the parachute system.				**x**			
Check the opening of the stainless steel box lid and that it stays up.				**x**			
Check the mounting and connectors of the electronic module (ECU).				**x**			
Check the cams: Wear / Looseness / Jamming in the panels…				**x**			
Check the centring of the door in the high position by opening the hard-top.				**x**			
Check for shocks on the sections (inside and outside faces).				**x**			
Check all the mounting points of the **SmartOpen-C** module: Screws / Rivets… ⇨ Rear frame / Mechanical assembly in the **SmartOpen-C** box.					**x**		

Servicing and repair

To maintain the original characteristics, servicing and repair of the **SmartOpen-C** must be performed according to strict rules.

For maintenance and repair operations, you must contact our after-sales department.

For maintenance and/or repair work, contact our customer service department (see contact details below).

A technical manual and various training aids are available from CHEREAU Services, for companies that have the technical skills necessary to service and maintain the equipment.

Before any work is carried out, the equipment should be electrically disabled at the main power switch, located on the battery output.

Work at height should only be carried out using an approved platform (elevator platform or safety scaffolding).

CHEREAU Services
ZI le Domaine – DUCEY – BP 700
50307 AVRANCHES CEDEX
France
Tel: +33(0) 233 893 893
List of CHEREAU service points: www.chereau.com

Glossary

SmartOpen-C: Thermally insulated sectional electric door.

Patented system, developed and produced by CHEREAU.

Isothermal body: Structural part of the body consisting of an insulated floor, 2 sides (side panels), a roof (upper panel), a front face that generally supports the refrigeration unit and a rear frame.

Rear frame: Rear frame of the bodywork in stainless steel.

Lintel: Upper transom of the rear frame ➔ The motorisation and the ECU of the SmartOpen-C are located on the inside of this lintel.

Door apron: Mobile part of a sectional door, made up of articulated panels guided laterally by rails by way of rollers.

ECU (Electronic Control Unit): Electronic management and control circuit board for the motorisation of the sectional door.

HMI (Human-Machine Interface): Control panel having all of the use controls and the information displays necessary to perform equipment operation diagnostics.

Hard-top: Manually retractable rigid roof which is located on the upper part of the roof.

"Parachute" system: Safety system that blocks the sectional door in the case of breakage of the chains or balancing spring.

Photoelectric cell: A photoelectric sensor is a proximity detector. It consists of a light transmitter and a receiver. Obstacles are detected by cutting of the light beam.

Magnetic cell: A magnetic sensor is a sensor used to detect a magnetic surface. The magnetic sensors are used as "End-stops" and detect the top and bottom sectional door positions using magnets placed in the apron.

Brushless motor: Motor that has characteristics similar to DC and AC motors without the drawbacks: a high speed and acceleration range without mechanical wear in DC motors, electronic switching substituting for mechanical switching.

User notes