SPARKLING WINE CLOSURE & BOTTLING

Good practices guide

DIAM BOUCHAGE

EDITORIAL

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Customer Service and Technical Sales Support

As a cork professional, Diam Bouchage works in partnership with glassmakers, machine manufacturers and specialized laboratories. Permanent exchange with our partners enables us to develop precise expertise on bottling that we wish to share here with our clients.

Every week we witness bottlings which do not quite go to plan, where machines have not been calibrated correctly, the cork is incorrectly positioned or the filling level is not exact. The consequences can be irreversible once the bottle is closed! But, **by simply carrying out preliminary checks, winemakers can eliminate 99% of the risks in this crucial stage of bottling.**

This white paper enables you to anticipate this stage through information on the necessary checks and calibration procedures, what to look for and what to avoid.

Our after-sales service team is at your entire disposal for any further information: sav@diam-bouchage.com

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Key

New MytiK — Characteristics of our corks

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What you need to know

Document for download

Video illustration

As a reference, we will use **Cetie Guide No. 3 / 2020.**

What is a sparkling wine?

The term sparkling is not regulated.

It covers all sparkling wines with a carbon dioxide pressure over 3.5 bars at 20°C.

Carbon dioxide is generated:

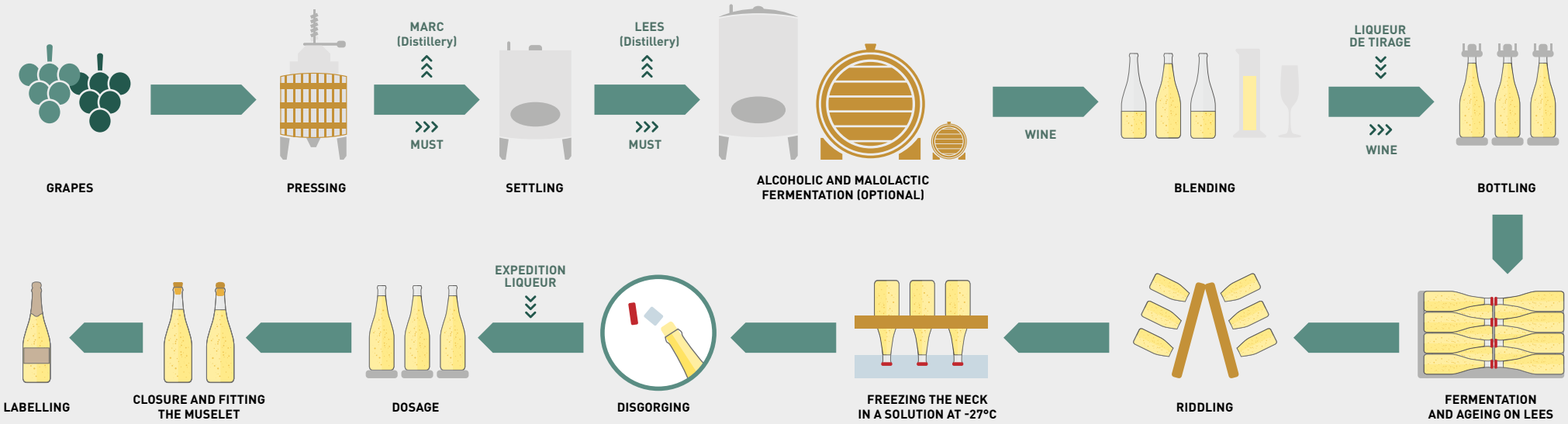
- → By secondary fermentation of a base wine in the bottle, after the addition over a «liqueur de tirage» (traditional method).
- → By continuous fermentation of a cold stabilized must in the bottle (ancestral method).
- → By secondary fermentation in a closed pressure tank (closed charmat method).
- → CO_2 can also be added by gasification of a base wine.

Did you know?

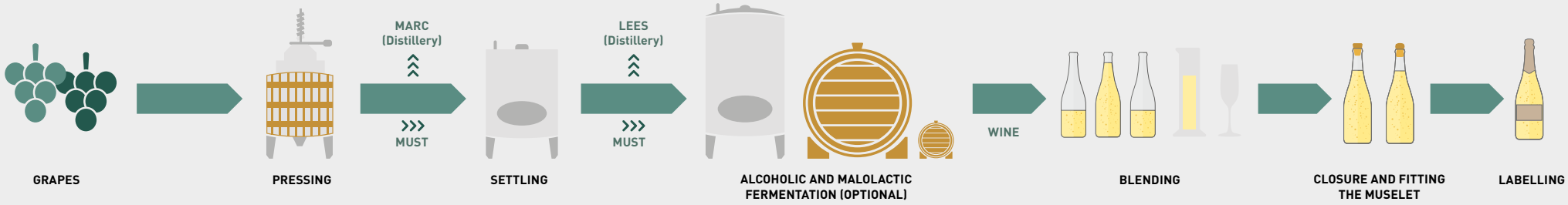
For charmat method professionals talk about «bottling» whereas for traditional method they use the word «disgorging». The present document only covers the final closure prior to shipping.

Two production methods.

Traditional method



Charmat method

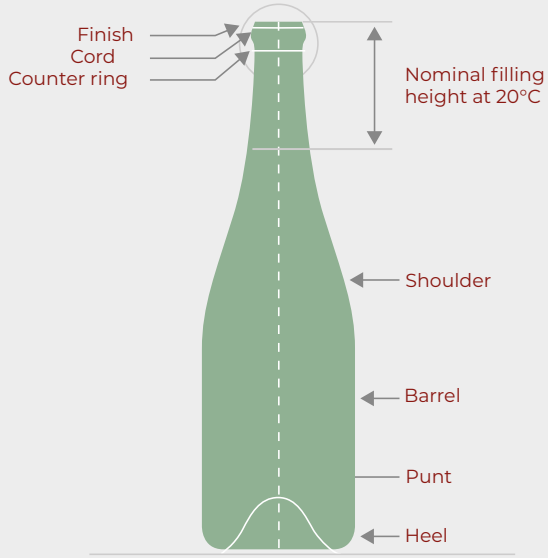


Chapter 1

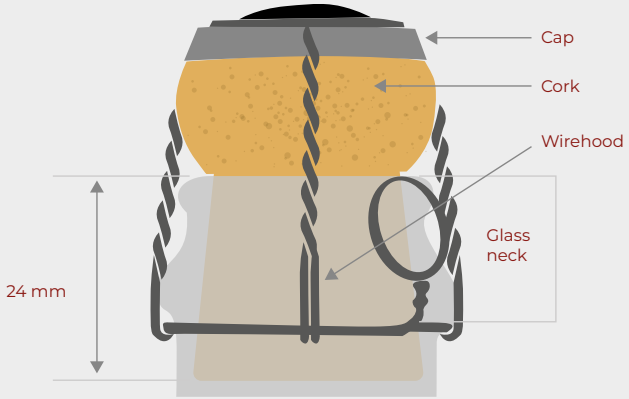
BOTTLES, CORKS AND FILLING

A little vocabulary

The bottle :



The muselet holds the cork in place with a wirehood tighted clamped onto the ring of the bottle.



Two types of corks are used:

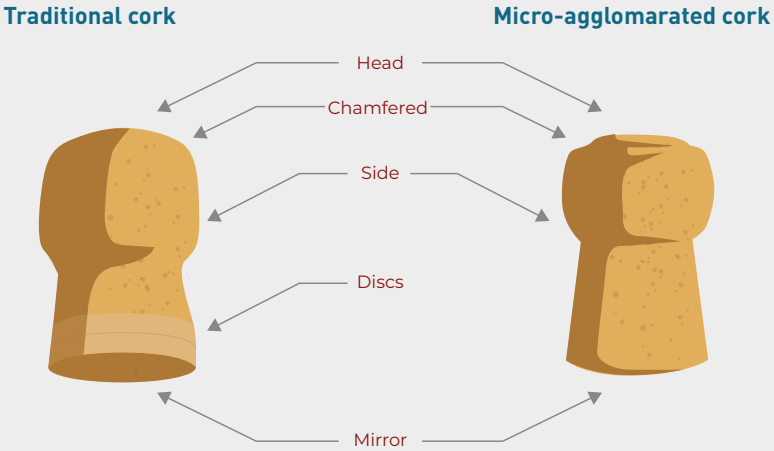
The traditional disc-corks are made of 2 parts corks have two sections:

→ A main body of agglomerated cork granules.

→ Two discs, sticked to each other and to the agglo part.

Technical corks are made of a single body of agglomerated cork granules.

Both types of corks are coated with a surface treatment to facilitate insertion and extraction.



Unlike for still wines, the cork for sparkling wines has a specific orientation: the mirror must be facing the wine.

Although more rarely used, there are also corks with a single disc, 3 discs, mixed agglomerate / micro agglomerate or multi-section.

Choosing the bottle

Selection criteria

→ **Bottle size:** from the quarter bottle (20cl) to the Melchior (30l). The most commonly used bottles are the standard 75 cl, the Magnum (1.5l), and the Jeroboam (3 l).

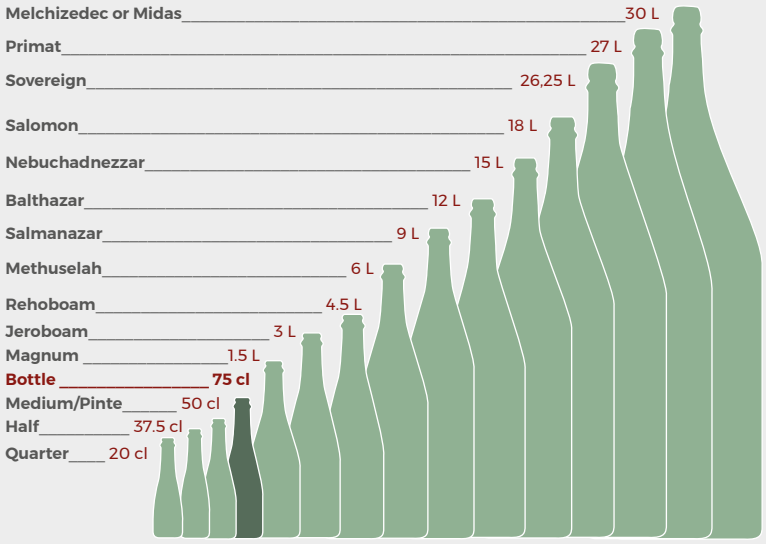
→ **The type of finish:** traditional (NF H35-029) or charmat (NF H35-106).

The most commonly used finishes are 26 and 29mm champenoise crowns.

For small bottles (18.7 cl or 20 cl) a 26mm finish is used.

For bottles larger than the Magnum, the finish is usually square.

→ **Aesthetics and Price**



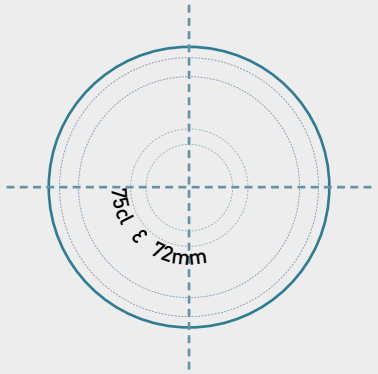
Specifications

→ The chosen bottle must resist the high constraints of the wine-making process and the danger it represents for **the consumer safety**. The technical datasheets provided by the glassmakers define the following values:
- Maximum alcohol content and carbonation rate (CO2 g/l)
- Maximum product temperature and internal pressure
- Thermal shock on the bottling chain
- Maximum vertical pressure at capping and stacking

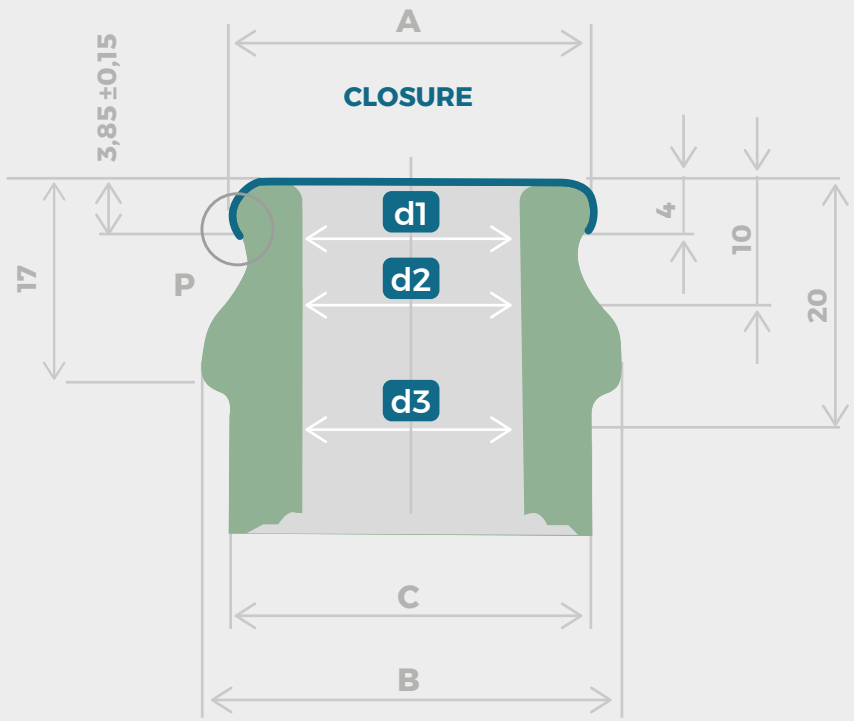
→ Once you have chosen a finish, don't forget to use a **suitable muselet**

→ We recommend choosing a "recipient-measure" bottle (RM) with a guaranteed capacity. These bottles are easily identified by the 'epsilon' embossed on the base.

→ The RM displays the manufacturer's recommended fill height at 20°C directly on the bottle, which can be useful on the bottling line.



The 29 mm Champenoise finish



Dimensions and characteristics of the 29 mm glass finish in accordance with the NF H35-029 standard.

Ø	Finish 29 mm
A	29,00 ±0,3
B	33,60 ±0,3
C Col	29,00≈
D1 à 4 mm	17,50 ±0,3
D2 à 10 mm	D1 $^{+0,1}/_{-0,4}$ ≤ 17,80
D3 à 20 mm	≤ 18,00 avec D3›D2
Indication at 25 mm	≤ 19

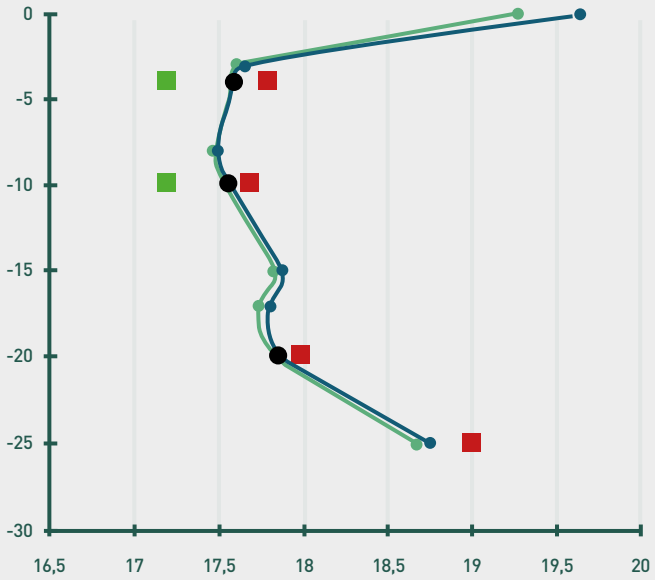
→ In the area between 4 and 10 mm, the profile should be «V» shaped to facilitate expulsion during disgorging.

→ In the area between 10 and 20 mm, the profile should be «A» shaped.

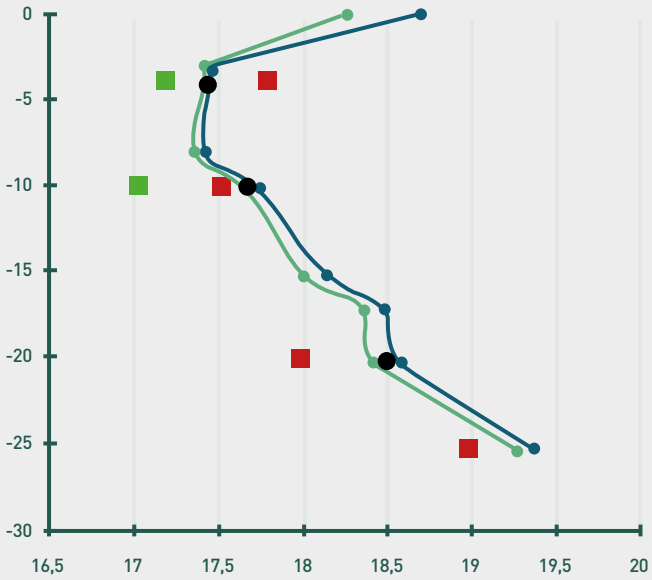
Examples of internal profile of the 29 mm finish

Every single bottle has a different internal profile. To be compliant, this profile must comply with the minimum / maximum values seen on the previous page.

Compliant internal profile



Non-compliant internal profile



Key:

- Min NF H35-029
- Max NF H35-029
- Min
- Max
- Average

A non-compliant internal profile can lead to difficult insertion, cause inconsistant corking and potential explosive opening. An intertest is used to check the bottle's profile.

Watch a video of this check

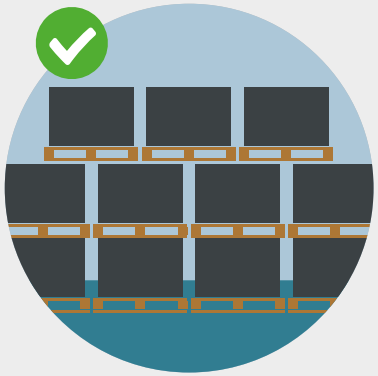
Bottle storage recommendations

For the charmat method, the bottles must be clean and dry, rinsed and drained before bottling.

Covers under which the bottles are stored must be in **perfect condition** to avoid risks of moisture or contamination.

Do not store in the sun to **avoid thermal shock** (development of moisture) and warming the wine during bottling.

Do not store near chemicals (phytosanitary or surface treatment products) to **avoid any organoleptic or chemical contamination.**



The CETIE recommends limiting storage to 3 heights when stacking pallets: the last level should be **staggered** for stabilization purposes.

Resistance to intense mechanical stress

Internal pressure resistance

- During fermentation in the bottle, an internal pressure of 6 bars at 10°C is generated for the traditional method.
- Bottles filled with sparkling wines can be stored for many months or a few years before disgorging or shipping. The storage temperature must be controlled as this strongly influences the internal pressure.

Effect of temperature on pressure in sparkling wine bottles

Température °C	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Pressure in bars	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.8	2.9	3.0	3.1	3.2	3.2	3.3	3.4
	2.2	2.3	2.3	2.4	2.5	2.6	2.7	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.8	4.0
	2.5	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5
	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.8	3.9	4.0	4.1	4.2	4.4	4.5	4.6	4.7	4.8	4.9	5.1
	3.1	3.2	3.3	3.4	3.6	3.7	3.8	3.9	4.0	4.2	4.3	4.4	4.6	4.7	4.9	5.0	5.2	5.3	5.4	5.5	5.7
	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.3	4.4	4.6	4.7	4.9	5.0	5.2	5.3	5.5	5.7	5.8	5.9	6.0	6.3
	3.8	3.9	4.0	4.1	4.3	4.4	4.5	4.7	4.8	5.0	5.2	5.3	5.5	5.7	5.8	6.0	6.2	6.3	6.5	6.6	6.8
	4.1	4.2	4.3	4.5	4.6	4.8	4.9	5.1	5.2	5.4	5.6	5.8	6.0	6.1	6.3	6.5	6.7	6.8	7.0	7.1	7.4
	4.4	4.5	4.7	4.8	5.0	5.1	5.3	5.5	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.5	7.7	8.0
	4.7	4.9	5.0	5.2	5.4	5.5	5.7	5.9	6.0	6.3	6.5	6.6	6.9	7.1	7.3	7.5	7.7	7.9	8.1	8.2	8.5
	5.0	5.2	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.5	7.8	8.0	8.2	8.4	8.6	8.8	9.1
	5.3	5.5	5.7	5.9	6.1	6.3	6.4	6.6	6.9	7.1	7.3	7.5	7.8	8.0	8.3	8.5	8.8	8.9	9.1	9.3	9.7
	5.7	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.3	7.5	7.8	8.0	8.3	8.5	8.7	9.0	9.3	9.5	9.7	9.9	10.2

Resistance to mechanical and thermal shock during production

- Handling on high-speed automated equipment: conveying bottles, manual or automated riddling, disgorging, successive dosing, capping, final corking and shipping (high vertical pressure), labelling and packaging.
- Thermal shock: the neck is frozen during disgorging (-25°C / < 35mm), then rinsed.

Sparkling wine bottles should NOT be re-used ! Technical data sheets are very clear on this point. Mechanical history of the bottle can not be tracked. Therefore re-using sparkling bottles can be dangerous.

Key aspects for ensuring consistent corking

Bottle quality is essential to ensure a consistent and flawless bottling operation : strict quality controls are carried out by the glassmakers. The main risks are related to transport, storage and handling all along the distribution chain.

A perfectly moulded neck

The internal dimensions of the neck must be consistent and in compliance with the specifications. This is the key to ensure a smooth bottling operation.

Perfect verticality and a smooth ride during conveying

These characteristics are crucial to ensuring a smooth flow of bottles on the bottling lines. They ensure that the bottles are guided and centred evenly.

Cork Specifications

More than just an ordinary closure, a cork is the winemaker's ultimate oenological act. It must allow the wine to fully develop in the bottle during ageing while ensuring respect of the originally intended aromatic profile.

Neutral

- → Refuse the presence of 2,4,6-trichloroanisole (TCA) and other compounds responsible for cork taint.
- → Also refuse any molecules that can cause organoleptic deviations.

Consistent

- → Obtain bottle to bottle consistency in wine aging (all corking steps must have been followed according to standard).

Reliable

- → Ensure a perfect seal during storage.
- → Guarantee opening safety.

Tailored to every wine

- → Oxygen ingress and CO_2 preservation (choice of stopper permeability).
- → Wine aging period (choice of stopper mechanical properties).

What is cork taint?
Cork taint is a musty taste. It has also been described as a taste reminiscent of rotten wood, dust, or wet cardboard. The same characteristics can be found on both the nose and the palate.
The molecule most often blamed for cork taint is 2,4,6-trichloroanisole, more commonly known as TCA.
This molecule can be present in the cork used to manufacture the closures. There are however other anisoles (TeCA, TbA, and PcA) that can give the same deviations.
All those molecules don't always come from cork. They can develop in any wooden material (pallets, beams, floors, etc.) and contaminate the wine via the air. This is called aerocontamination.

News

Thanks to an exclusive patented process of cork "de-aromatisation", Mytik DIAM closures provide unmatched sensory neutrality.
Over 150 molecules are extracted some of which can cause organoleptic deviations, including TCA responsible for cork taint.
This manufacturing process guarantees every single closure unit. (releasable TCA ⩽ 0.3 ng/l).

Learn more about the DIAMANT® process

Choosing the right closure for successful disgorgement

In addition to the above-mentioned specifications, the closure is also a technical choice that will impact the bottling process. Here are the main elements to consider:

Appearance

- Before bottling, make sure to check the cork branding is the one you chose!
- There are different grain sizes and types of markings (flame/laser) that will make a difference.

Dimensions

- The cork diameter must be suited to the internal profile of the bottle neck in order to provide a tight seal.

Surface treatment

- It ensures a better flow of the cork in the feeder and in the positioner.
- It must be homogeneous to ensure regularity during insertion and easy extraction for the consumer.

Optimal elasticity

- Fast dimensional recovery at cork insertion ensures a good seal.
- This enables sufficient pressure against the bottle neck to prevent any gas leakage or seepage.
- Combined with an adapted coating, it provides a safe and easy extraction force, respecting the specified limits (check the cork manufacturer specifications).

Batch consistency

- Ensures regularity on the bottling line.
- For smooth, automatic, and high-speed closure (more information in chapter 2).

News

After installation, the cork returns to its original shape, which is called dimensional recovery. For Mytik DIAM caps this is at least 90% in 30 seconds.

To ensure a consistent closure, all Mytik DIAM corks have a 1mm micro-chamfer on the mirror side.

Corks

Extraction torque control for safe uncorking

It is essential to check the extraction torque of the closures (also called opening torque) to avoid impossible or untimely uncorking, which may be dangerous for the consumer.

Objective measurement of the extraction torque can be carried out on the finished product.

It corresponds to the force required by the consumer to remove the cork from the neck of the bottle. The extraction torque is expressed in newton meters (N.m).

Known parameters, dependent on the measurement conditions, which affect the value of the uncorking torque include:

- **date of measurement in relation to the date of closure**
- **temperature of the sample**
- **insertion depth of the cork**
- **device used: manual or automatic**

For more information, please refer to article 5.3.3 of the CETIE Guide:

Above a value of 3 N.m manual opening is considered impossible. Below 1.2 N.m opening may be untimely and it is therefore dangerous.

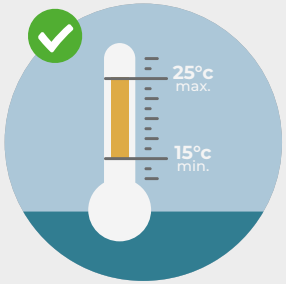
When the products are marketed, the producer must ensure that the extraction torque of the closure complies with the CETIE standard, as the uncorking torque decreases over time.

For the Mytik DIAM range, we recommend a torque of between 1.5 and 2.8 N.m depending on the chosen cork.

Measurement of the extraction torque is carried out on bottles at 10°C using a torque meter, exerting an extraction/rotation movement. Please note that this is a destructive test as it is not possible to repeat the measurement on the same sample.

Watch the video

Cork storage recommendations

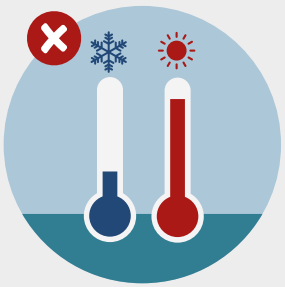


Storage temperature

Room temperature between 15°C (59F) and 25°C (77F).

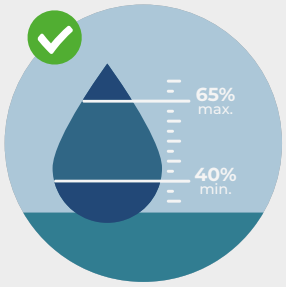
Chemicals

Keep away from any chemicals, especially those containing halophenols or chlorine.



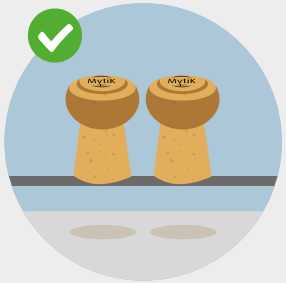
Storage temperature variations

Avoid extreme temperature variations.



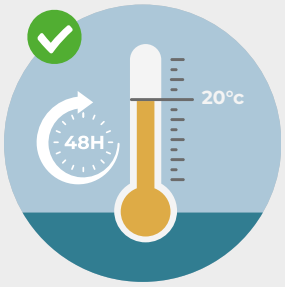
Controlled humidity

Relative humidity between 40% and 65%.



An adequate room

Above-ground storage in a clean, ventilated, and odourless room.



Preparation before bottling

Tempering at around 20°C (68F) 48 hours before bottling.

It is important to periodically check the storage area atmosphere for contamination, using a bentonite trap for example.

A complete document about Mytik DIAM corks storage is available on request.

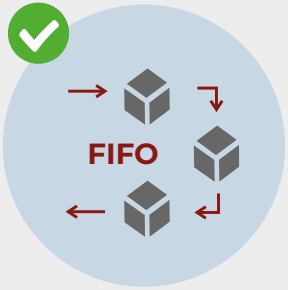
Closure use reminder

Cork dust inspection

- Before use, check that the bags of corks are dust free.
- It can be found in the compression jaws and more importantly in the wine !

Shelf life

- Prefer the FIFO system: First In, First Out.
- Any opened bag should be immediately and fully used.
- The supplier must indicate shelf life on the packaging. It can vary a lot depending on the coating used.



News MytiK DIAM

Mytik DIAM corks are guaranteed with a dust content ⩽0.3 mg/closure.

Their UBD (Use By Date) is printed on our box labels.

This UBD is the date up to which we guarantee that our corks retain their specific properties under appropriate storage conditions.

The shelf life for our sparkling wine closures is 3 to 6 months depending on the chosen coating.

Measuring the fill level (ullage)

Fill level is calculated using two very precise methods (required by customs during inspections) that are sometimes difficult to implement.

Respect the nominal volume:

→ Most of the bottles have a standard fill level. It is to be found on the bottle drawing (e.g. from 200 ml to 30 L for sparkling wines). This **fill level must be respected** to put the wine on the market.

Determine the fill level:

→ Before bottling, check the fill level **specific to your bottle (epsilon)** on the bottle drawing provided by the glassmaker.

→ The fill level is based on the elementary law of fluid expansion and is therefore temperature dependent.

→ **Mesure the wine temperature (T°C)** using a thermometer or a manometer.

→ Then use this data to set the fill level by reading the chart.

Check the volume using one of the following two methods:

Both methods comply with the legislation.

Volumetric method:

→ Empty the content of the bottle into a volumetric flask with an accurately known effective capacity. The measure must be taken at the reference temperature (20°C – 68°F).

Weight method:

→ Weigh the bottle empty (m1) and full (m2). Calculate the volume using this formula: V = (m2-m1)/ mvliq (mvliq is the wine density at 20°C or 68°F of the bottled liquid).

On the bottling line, you can use a graduated ruler for quick quality controls. This ruler is very handy but not very precise (usual precision of 0.5 mm). It is not accepted by customs an official method.

Watch a video of this method

When the fill level is not available on the bottle drawing, then it has to be determined before using this method.

SUMMARY

Necessary bottle and cork controls before disgorging:

BOTTLES

- Undamaged cover (risk of water or foreign object)
- No broken bottles (risk of broken glass)
- No off odours
- Corresponds to chosen model
- Only new bottles
- Bottle's Epsilon (for those that have it)

CORKS

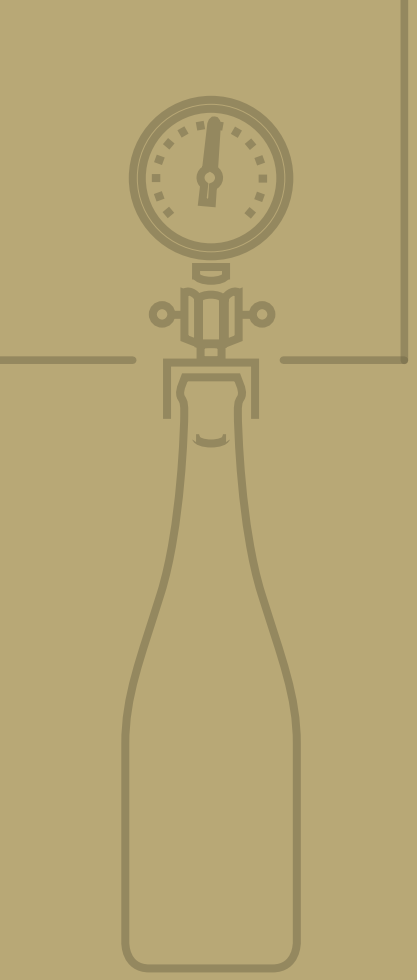
- Dimensions
- Branding
- Quantity available
- No visible mold
- No off odours
- UBD validity (Use By Date)
- Conformity certificate (moisture, elastic recovery, extraction force, capillarity, cork dust, absence of TCA)

Before disgorging, be sure to accurately define the fill point using the **glassmaker's chart** and a **graduated ruler** to ensure **fill level** compliance.

Remember that wine expands with temperature, and depending on its alcohol content. This must be considered when measuring the fill height.

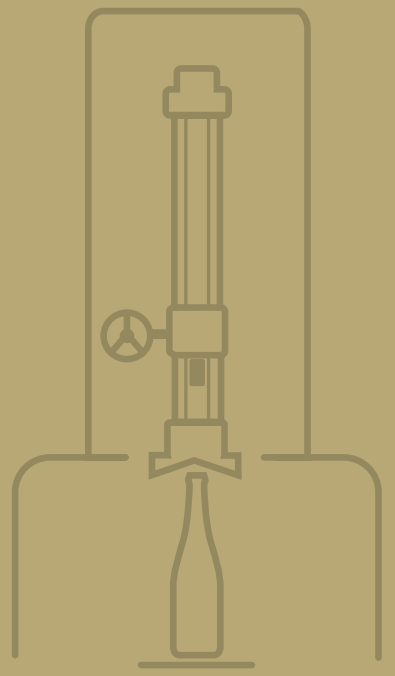
We recommend having a checklist with you on disgorging day to record all the checks you perform for follow-up audits: wine, dry goods batch number, epsilon, quantities, temperature, etc.

Download the checklist



Chapter 2

THE BOTTLE CORKER



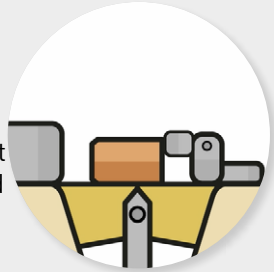
DIAM BOUCHAGE

Introduction

Bottle corker components

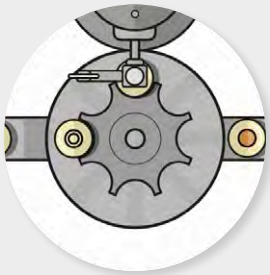
The cork distribution system

- The guide rotates the cork upstream of the compression unit to position the chamfer upwards.
- The feeder system ensures that the corks are evenly distributed to the compression unit.



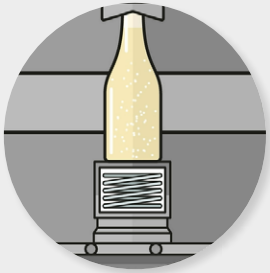
The bottle centering system

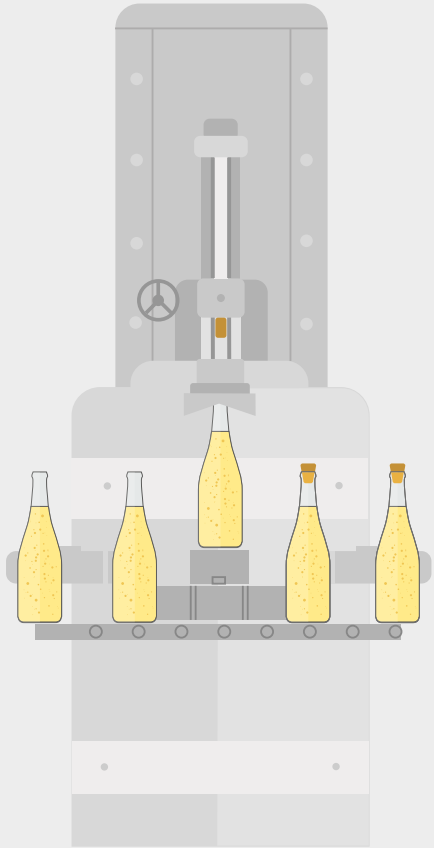
- Consists of the star, counter-star, and guides.
- Guides the bottles to their correct position on the pedestal.



The pedestal

- Its purpose is to compensate for bottle height tolerances.



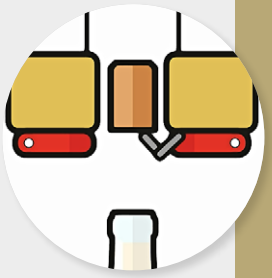


Bottle centering

For sparkling wines, 2 types of devices allow centering of the bottle:

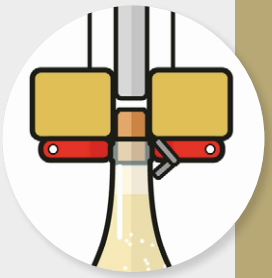
- **The clamp system for champagne corks**
- The bottle is in direct contact with the compression unit.
- The clamps grip the neck to hold the bottle in place when the cork is pushed in.
- They then open to release the bottle.

- **The centering cone and transfer shaft are modified for still wine corking:**
- The centring cone positions the bottle under the transfer shaft, enabling the cork to pass from the jaws to the bottle under the effect of the plunger.



The plunger

- Pushes the cork into the bottle to 24 +/- 2 mm.
- Regular insertion is one of the critical points in the closure of sparkling wines.



The compression unit

- Usually consists of 4 jaws.
- Compresses the cork to the desired diameter.
- Compression should be as consistent and as slow as possible.

Watch a video of a bottle corker in action

Corking speed

The machine must be set according to manufacturer's recommendations and remain within the optimal operating levels.

As each machine has its own specific functions, generalisation is not possible.

What are the consequences of a poorly adjusted bottling speed?

→ **Too fast** a pace can lead to bottle foam and liquid loss. The content volume can then be incorrect.

→ If the pace is **too slow**, this can lead to uneven cork insertion, or sometimes to plunger marks on the cork head, domes, folds and/or lost corks.

The cork distribution system

The receiving hopper and ducts must ensure the corks are evenly distributed without damage:

→ Avoid placing too many corks in the hopper: surface treatment of corks which are under too much weight pressure may be damaged by abrasion, creating dust and therefore torque issues upon opening.

→ Adapt the diameter of the tubes to that of the corks: if the corks do not slide in the feeder tubes, the bottling line may stop.

The orientor enables the cork to be correctly positioned upstream of the compression box, mirror down.

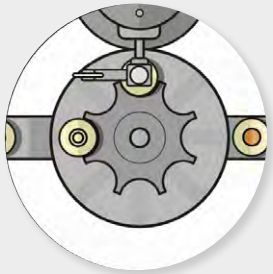
There are many types of orientors, some use gravity (LA2R corks have discs that are heavier than the agglomerated cork body), others use optical reading (the sensor locates the most chamfered part).

What are the consequences of incorrect orienting?

→ Sensory consequence: for LA2R corks, the head presents a greater risk of TCA contamination than the mirror discs.

→ Technical consequence: if the cork is upside down, the chamfer is inside the bottle. Will provoque an incorrect positioning of the muselet.

The bottle centering system



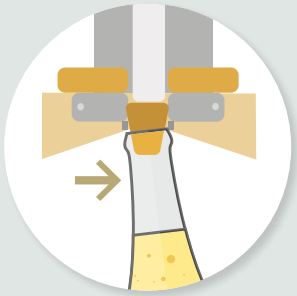
Two principles ensure effective bottle guidance:

→ Equipment suited to the type of bottles used.
Star(s), counter-star(s) and guides must be changed as needed and always be suited to the bottles shape.

→ Properly adjusted equipment for proper bottle centering.

What happens when the centering system is not properly adjusted?

1. The bottle isn't positioned correctly under the centering device : It is not aligned with the axis of the transfer shaft (angular deviation).

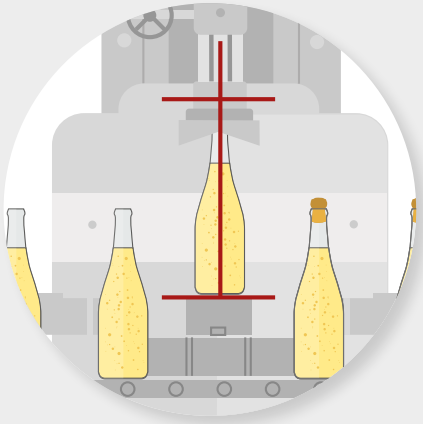


2. The closure goes down into the bottle, pushed by the plunger but rubs hard against the inside of the neck. Theinsertion is neither complete nor correct.

Consequences:
the closure could be badly inserted, on an angle in the bottle, damaged, or folded.

The pedestal and compensation spring

For proper operation, 2 controls must be made on the pedestal:



→ **Surface condition**

The surface must be smooth and clean so that the bottle can slide and keep its vertical position.

→ **Flatness**

The pedestal must be perfectly flat, so the axis of the bottle is aligned with the axis of the plunger (no angular deviation). An uneven pedestal could cause a bottle centering problem and result in improper bottling. This incorrect setting can go so far as to cause the bottle to break.

What happens when the spring if worn out or broken?

The spring does not do its job and no longer pushes the bottle up against the centering device. When the plunger pushes the closure down, the bottle will tend to descend, which could cause inconsistent insertion.

Here is how the pedestal moves

There are two types of pedestal : mechanical (spring-loaded) and pneumatic.

It is possible to add a compensation wedge at the pedestal to optimize its operation and to obtain a better corkingconsistency.

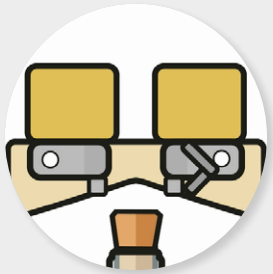
Bottle centering

2 types of centering

There are two types of cork machines for sparkling wines. The main difference is the bottle centering system.

→ **Champenoise corking machine:**

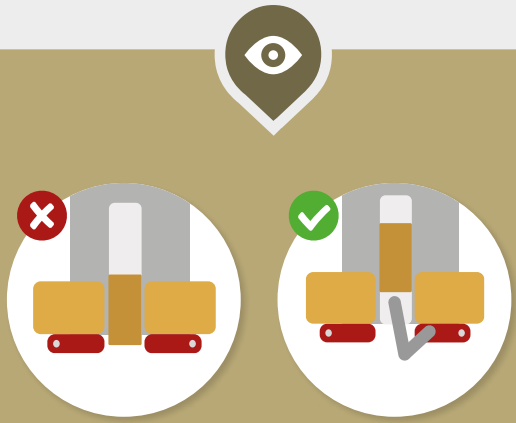
Centring is done by a clamp system: the bottle is in direct contact with the compression unit. The clamps grip the neck of the bottle to hold it in place while the cork is being pushed in. The clamps open to release the bottle.



→ **Modified still wine corking machine (with the addition of an orientor):**

The bottle is placed by a centring cone under the transfer shaft.

When the desired capping height is reached, the bottle descends with the plunger before being released.



Whatever the cork machine, the presence of a mechanical finger holding the cork is essential.

It keeps the cork high enough in the jaws to prevent it from coming out of the jaws when compressed (= the cork extends).

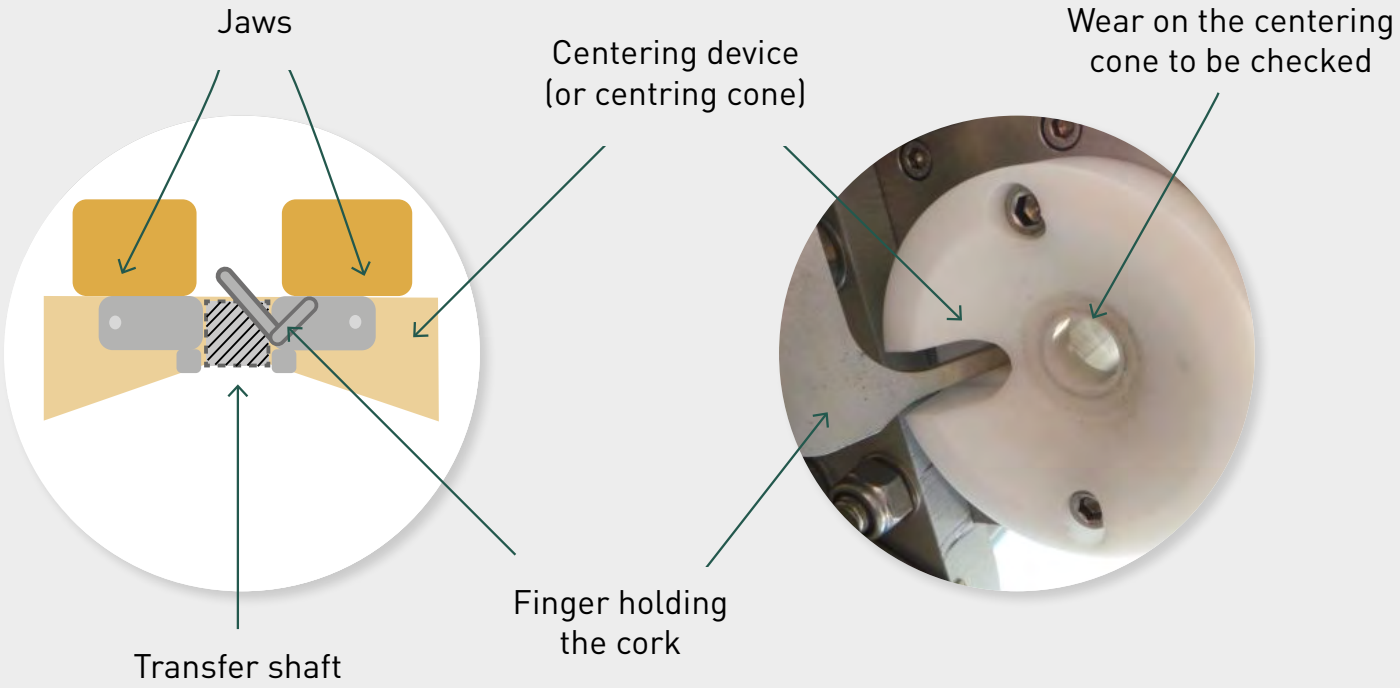
This would lead to folds in the cork during closure.

See how these two systems work on video

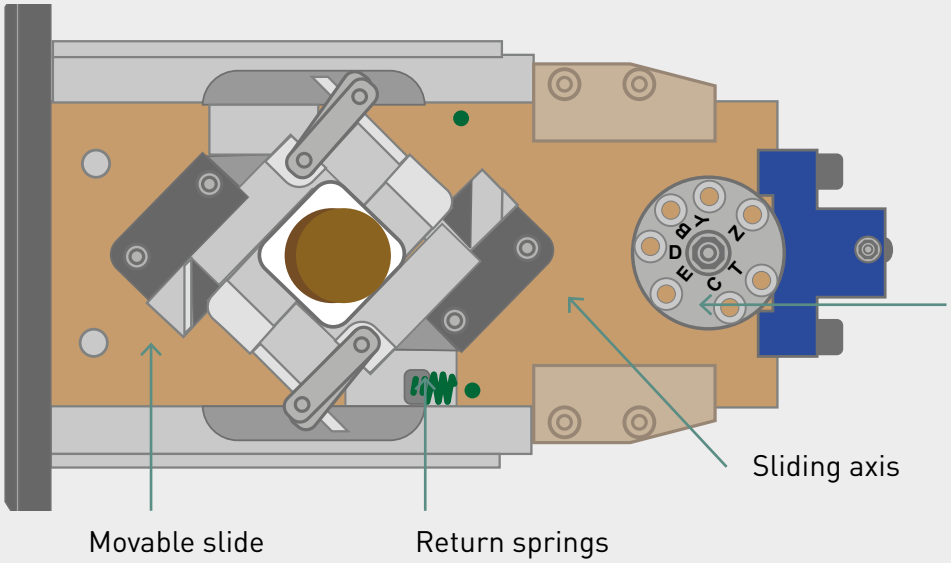
The cork centering device

The corker head

For the «still wine modified» corking machine, here are some things to know.



Compression unit components



2 types of jaws are mainly used

3° conical type: the uprights form an angle of 1.5°

12° conical type: the uprights have two parallel sections and then form an angle of 6°

The compression unit and jaws

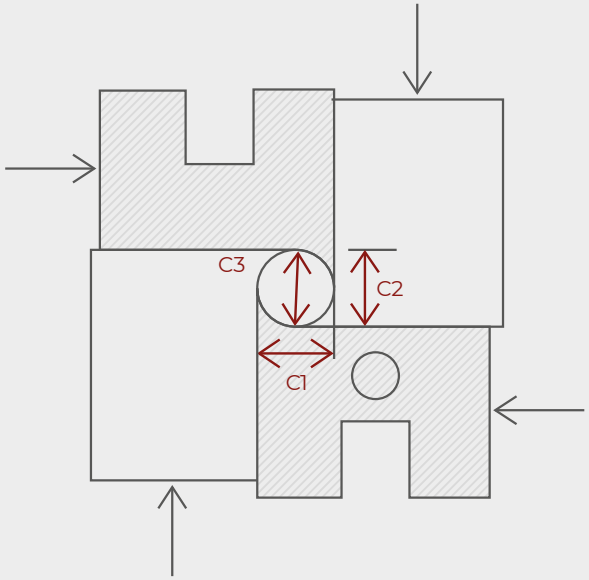
Adjusting and checking the jaws

The compressed jaws must form a cylinder:

- The dimensions to check are C1 and C2 (minimum diameters) and C3 (maximum diameter).
- C1 and C2 must be measured using a calibrated gauge :
  - For a 29 finish, the diameter should be between 15.1 and 15.6 mm without cork or 15.2 and 15.7 mm with cork.
  - For a 26 finish, the diameter should be between 14.1 and 14.6 mm without cork or 14.2 and 14.7 mm with cork.
- C3 is measured using a comparator. The maximum clamping diameter of the jaws must be :
  - Smaller than the bottle neck's inside diameter for champagne corkers.
  - Smaller than the inside diameter of the transfer shaft for a modified still wine corker.
- The jaws setting is the same regardless of the type of closures used.

Whatever the bottle corker type, compression is checked using a calibrated two-line comparator or a gauge.

Watch the video

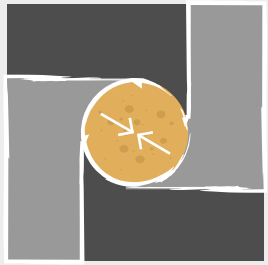


C1 and C2 :

Finish 29
15,1 - 15,6 mm without cork
15,2 - 15,7 mm with cork

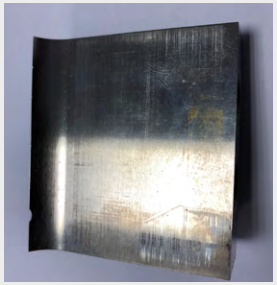
Finish 26
14,1 - 14,6 mm without cork
14,2 - 14,7 mm with cork

The jaws are critical parts for a quality corking



Chipped jaws inevitably cause cuts of varying depths in the closures. Damaged closures can then lead to wicking and/or leakages.

Due to the extreme mechanical stress, it is normal that the jaws wear out. The clamping diameter then becomes too large and the cork is no longer compressed enough for quality insertion.



How to maintain the jaws?

- → Dismantle and check the condition of the jaws after every use and every incident, being very careful not to chip them.
- → Check the integrity of the moving parts, the surface condition (cleaning and dusting) and the lubrication (greasing).

Take a close look at:

- → Proper jaw blades position.
- → Absence of chipping on jaw blades.
- → Absence of ducts in the jaw ellipse.

What are the consequences of an incorrect setting?

Skewed cork: the cork does not fit in the axis of the bottle neck and is caught on one side.

Dust:
the cork hits the neck of the bottle, creating particles that can fall into the wine.

Irregular cork positioning:
this is the most common problem! If the jaws are not tight enough, the cork enters the neck but touches the walls too quickly and does not go in deep enough. This is what we call the short corking.

The plunger

The plunger pushes the cork into the bottle. The steps below should be followed at the beginning of the process:

- Adjust the plunger using the nut/locknut system or electrically.
- The plunger must be well centered, correctly secured and clamped.
- Adjust the height: the cork must be pushed in by 24mm +/- 2mm.
- The setting must be checked for each batch of corks and bottles.

What are the consequences of an incorrectly adjusted plunger?

Incorrect insertion height

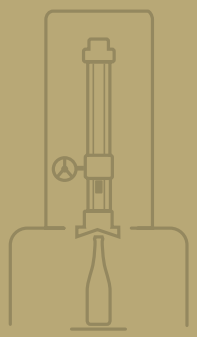
If the plunger is too low, the cork will be pushed in more than 26 mm, which will make it more difficult to uncork the bottle.

If the plunger is too high, the insertion depth of will be less than 22 mm. In addition to the risk of unintentional uncorking, this can lead to incorrect positioning of the muselets.

Pushing speed too slow

(sometimes linked to machine speed), means that the cork recovers its initial diameter too quickly on leaving the compression unit. The plunger will then force the cork into the bottle with too much pressure and damage it through friction, or it may be skewed in the bottle.

SUMMARY



For a perfect end result, follow the bottle corker checklist:

SETTINGS
before bottling

- Corking speed: according to the manufacturer's recommendations.
- Orientor: ensure that the mirror on the cap is set so that it is facing downwards.
- Centering system: adapted to the bottle shape.
- Pedestal: flat surface • dynamic spring.
- Centering device: the bottle must be placed in the axis of the spindle.
- Plunger: centering • clamping • insertion height.
- Jaws: check that the finger holds the cork high enough in the jaws - adjust the diameter for a 29 finish, the diameter should be between 15.1 and 15.6 without corks or 15.2 and 15.7 with corks.

ROUTINE CHECKS
throughout the bottling process

- Cork insertion: 24 mm +/- 2 mm.
- After each use AND after any incident, dismantle and clean the jaws.

On bottling day we recommend using a checklist to record the checks made.

Download the checklist

To help you remember what to check when you notice a closure defect, please refer to our special document.

Download the document

SPARKLING WINE CLOSURE & BOTTLING

Good practices guide

At DIAM Bouchage, a French company located in the Pyrenées-Orientales, we have been working for over fifteen years to offer innovative solutions for winemakers.

The company produces and markets nearly 2.4 billion closures a year. Our success was primarily built on the Diamant® process, which extracts the TCA molecules responsible for cork taint (under the quantification limit of 0.3 ng/l).

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