



**CBOE TITANIUM EUROPE EQUITIES GUIDANCE
NOTE
Cboe Closing Cross (3C)**

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1. Introduction

This guidance note is intended to provide contextual detail to the Cboe Europe Equities (“Cboe”) Cboe Closing Cross (3C) functionality which went live on the BXE Production platform on **16th August 2019** and effective **Friday 27th November 2020** on DXE Production.

3C functionality utilises a differentiated crossing algorithm and takes place on the Cboe BXE and DXE environments after the close of continuous trading.

Intended Audience

This guide is intended to be read by those with responsibility for implementing and supporting interfaces to Cboe (typically software engineers, support staff, business analysts and systems administrators).

2. Cboe Closing Cross (3C)

Summary

- Effective **Friday 27th November, 2020** launched 3C on the Cboe NL venue (DXE).
 - The 3C functionality will operate under the MIC code BATE on the BXE platform and CEUX on the DXE platform **only**, using a differentiated crossing algorithm.
 - All orders shall be expired/cancelled back at the end of the BXE and DXE Continuous session, as per existing functionality.
 - A series of 3C crossing periods, scheduled for 15 seconds in duration¹, shall then run back to back for all eligible symbols. Collectively these crossing periods comprise the 3C session, which lasts 25 minutes.
 - Only limit orders² submitted using 9303=BU from the start of the 3C session onwards will be accepted. **All other order types will be rejected.**
 - Effective **until COB 1st August 2024**; Orders are subject to a 20% static collar based on the last continuous book traded price on BXE, CXE or DXE using the transaction time from the matching engine to determine the most recent trade price to use.
 - Effective **2nd August 2024**:
 - Orders will be subject to a 20% static collar for non-liquid* symbols and a 15% static collar for liquid* symbols.
 - Static collars will be calculated based on three stages of reference price determination, starting with 1 and moving onto 2 and then 3 if unavailable.
 1. Last continuous book traded price on the day on BXE, CXE or DXE using the transaction time from the matching engine to determine the most recent trade price.
 2. Midpoint of the CBBO** at close.
 3. Previous day's close price on the primary listing exchange.
- *Symbol liquidity determined by regulatory body.
- **Cboe Europe Best Bid and Offer combination calculated from across the CXE, BXE and DXE environments.
- Orders will execute at their limit price only with no price improvement.
 - 3C executions will continue to be identifiable under the Sub Market Identifier Code (MIC) of **BATE** on **BXE** and **CEUX** on **DXE**. A full list of current Cboe MICs can be found on the [website](#).
 - There will be **no interaction** between 3C and other order books.
 - Effective **2nd March 2020**, operating hours for 3C were changed from 16:30 – 16:45 to 16:30 – 16:55 UK time and the frequency of 3C crossings changed from once per minute, to once per 15 seconds.
 - Effective **17th July 2020**, operating hours for the BXE, CXE, and DXE Continuous session across Oslo, Copenhagen Helsinki, Stockholm, Zurich and Dublin market segments were amended resulting in the below updated 3C session timings in BXE (all times UK):

¹ Actual duration will vary slightly due to processing demands

² Note: limit orders are treated as 'at-limit' in the 3C session. This applies to all references to limit orders in this document

BXE/DXE Market Segment	New - Continuous Session End/3C Session Start	New - 3C Session End
Oslo, Norway	15:20	15:45
Copenhagen, Denmark	15:55	16:20
Helsinki, Finland	16:25	16:50
Stockholm, Sweden	16:25	16:50
Zurich, Switzerland	16:20	16:45
Dublin, Ireland	16:28	16:53

- Effective **13th January 2023**, operating hours for the BXE, CXE, and DXE Continuous session across Prague, Warsaw and Budapest market segments were amended resulting in the below updated 3C session timings in BXE and DXE (all times UK):

BXE/DXE Market Segment	New - Continuous Session End/3C Session Start	New - 3C Session End
Prague, Czech Republic	15:10	15:35
Warsaw, Poland	15:50	16:15
Budapest, Hungary	16:00	16:25

3C Crossing Algorithm

A Crossing comprises two steps: Price Formation followed by Execution Allocation.

Price Formation

To determine a single equilibrium match price the following criteria shall be assessed in sequence:

- Maximum executable volume. If a single crossing price can be chosen, which uniquely maximises the crossing volume, then this is chosen as the crossing price.
- Closest to last traded price** - If i. does not resolve a tie break the order which is priced closest to the last traded price will be selected
- Highest price – If i. and ii. do not resolve a tie break, the order with the highest price will be selected.

**Last traded price is defined as the last continuous book traded price, open or close price of the BXE, CXE, or DXE environment (whichever you are trading in); whichever is the most recent; if none of these exist then the previous close or equivalent shall be used.

Execution Allocation

Execution allocations will take place on a **Price x Volume x Time** basis or **Broker x Price x Volume x Time** if Broker Preferencing is enabled.

Opening and Closing REGM Auctions

Opening and Closing Auction functionality for Cboe Regulated Market Listed ETF (REGM segment) securities operates between 07:50 – 08:00 and 16:30 – 16:35 (London time) on the Cboe CXE Environment and are completely distinct, separate and unaffected by the 3C crossing functionality. 3C functionality is not available for REGM securities.

3. Order Validity Matrix

The Order Validity Matrix provides an overview of the supported OrderType and TimeInForce (TIF) values for 3C.

- i. Day, Good Till Cancel (GTC) and Good Till Date (GTD) will roll between crossings until fully executed, their specified expiry time (GTD), the end of the last crossing of the day or until cancelled by the submitter;
- ii. Individual orders will be published on the market data feeds;
- iii. Orders with any ExecInst value will be rejected;

Time In Force							
	Order Type	Day	GTD/GTC	GFA	AtTheOpen	AtTheClose	IOC
Cboe Closing Cross (3C)	Limit	Accepted	Accepted	Accepted	Rejected	Rejected	Rejected
	Market	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
	Iceberg	Ignored	Ignored	Ignored	Ignored	Ignored	Ignored
	Pegged	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected
Rolled into next crossing period?		Yes	Yes	No	N/A	N/A	N/A

4. FIX

A new value '**BU**' (Post-market Crossing) will be supported for *RoutingInst* (9303) for New Order – Single messages.

A new value '**CC**' (Post-market Crossing) will be supported for *TradeLiquidityIndicator* (9730) for 3C trades.

5. BOE

A new value '**BU**' (Post-market Crossing) will be supported for *RoutingInst* for New Order V2 messages.

A new value '**C**' (Post-market Crossing) will be supported for *SubLiquidityIndicator* for 3C trades.

6. Multicast and TCP PITCH

Trading Status Message

A new Status value 'U' (Post-market Crossing) will be sent to signify the start of the 3C session.

For example, daily Status values disseminated for a 3C eligible symbol will be:

Time (UK)	Status	Description
~06:15	C	Closed
07:50	R	Off-Book Reporting
08:00	N	No Reference Price
~08:00	T	Trading
end of Continuous session	U	Post-market Crossing
end of 3C session	R	Off-Book Reporting
18:00	C	Closed

Auction Update Message and Auction Summary Message

A new Auction Type value of 'U' (Post-market Crossing) will be added.

Execution Flags

Executions resulting from 3C will be identified using MMT Level 1 value '5' (*Periodic Auction*) and MMT Level 2 value '4' (*Out Of Main Session*).

7. Symbol Reference Data

A new value of '**U**' will be supported in the column 'supported_services', to indicate symbol eligibility for the 3C session.

8. FAQ

General

When will the Cboe Closing Cross session be available?

The 3C session became available for all securities in the Production Cboe BXE Environment on 16th August 2019. Effective Friday 27th November 2020³, the 3C session will become available in the Production Cboe DXE Environment. Testing is available in the BXE and DXE Certification (UAT) Environment.

What are the 3C session times?

3C for a particular symbol will start once the Cboe BXE book has ceased continuous trading and will persist for 25 minutes in the Cboe BXE and DXE³ environments only. All crossings will be subject to the Holiday Schedule as shown on the [website](#).

When will the 3C session run on half day?

Should a Cboe market segment be open partially for a particular day (i.e. half day), the 3C session will commence at the end of the continuous trading session on that day and run for the following 25 minutes.

Are 3C crossings subject to market order imbalances and price monitoring extensions?

No, only Opening and Closing Auctions on the Regulated Market segment (REGM) in CXE support these types of extensions.

Is Clearing and Settlement different for 3C?

No, all 3C crossing trades are cleared under the same participant clearing and settlement arrangements as for other Cboe trades.

Will the CXE platform have 3C?

We currently have no plans to implement 3C on the CXE Order Book.

How can we identify the start of the 3C session?

Trading Status Messages updates ('U') will be sent for participating symbols at the start of the 3C session.

How long will a symbol remain in a 3C crossing period?

All symbols will have the same scheduled duration (15 seconds) per 3C period. Actual duration will vary slightly due to processing demands.

Order Entry

How do I enter an order into 3C?

A Limit Order with 9303=BU will be accepted. All other order types and execution instructions will be rejected as per the Order Validity Matrix.

³ Subject to regulatory approval

Will orders entered into the Cboe Periodic Auction Order Book automatically roll into the 3C session?

No. All orders including Periodic Orders will be cancelled back at the end of the continuous trading session and you will need to enter orders into a 3C crossing period as per the Order Validity Matrix.

Is it possible to receive half tick executions?

It is not possible to receive half tick executions in 3C crossings.

Will order entry support half tick prices?

No, pure limit orders on-tick will be accepted, all other order types will be rejected in the 3C session.

How will Participant Trade Prevention (PTP) be affected?

PTP settings will be **ignored** for 3C.

How will the GFA TimeInForce (TIF) value behave during the 3C session?

This TIF will result in any remaining quantity on the order being cancelled back after the next crossing match attempt.

Are Iceberg orders accepted in 3C?

MaxFloor values will be ignored. Iceberg orders are treated as limit orders.

Will Minimum Acceptable Quantity (MAQ) be supported?

Orders submitted with a MinQty value (FIX tag 110) will be accepted and honored.

Will Broker Preferencing be supported?

Yes

Can orders be updated or cancelled during a 3C period?

Yes

Will executions from 3C be uniquely identifiable?

Yes, FIX tag 9730 TradeLiquidityIndicator value 9730=CC or BOE Field SubLiquidityIndicator = 'C'.

What price will orders entered into the 3C execute at?

Only limit orders are accepted and therefore will only execute at or within a 20% collar of the last continuous traded price.

Market Data

When will the Auction Summary message be published?

The Auction Summary message will only be published at the end of a 3C period, if there is a crossing. 3C periods with zero executed volume will not generate an Auction Summary message.

What sequence of market data messages will be sent during a 3C session?

A Trading Status value 'U' signifies the start of the 3C session.

The following will be sent for each 3C period:

Add Order Messages will be sent for each order entered, followed by Auction Update messages with indicative price and size.

An Execution Message will be sent for any executed volume and an Auction Summary message will be sent with the details of a crossing.

Will market data for the 3C be published down a new feed?

No, market data is published over existing BXE feeds.

How should Statistics such as High, Low, etc. be calculated with regards to 3C?

Please refer to the [Vendor Matrix](#)

9. Certification (UAT) Testing

3C is available for testing in the BXE and DXE Certification (UAT) environments.

10. Document Links

[Multicast PITCH Specification](#)

[TCP PITCH Specification](#)

[BOEv2 Specification](#)

[FIX Specification](#)

[Reference Data Specification](#)

[Vendor Matrix](#)

[Technical Change Calendar](#)

Version History

Version Number	Publication Date	Description
1.5	12 th July 2024	Adding version tracking and 3C Static Collar Update
1.6	14 th February 2025	Updated for Titanium
1.7	7 th July 2025	Updated MMT Flag from 7 to 5