



Xetra<sup>®</sup> XXL

Market Model

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## 1 Introduction

Xetra provides a functionality for the trading of large blocks within a crossing framework. Block Crossing offers the following new features and functional enhancements:

- trading of large blocks on the basis of midpoints of the spread provided by a liquid reference market, e.g., the Xetra DAX, MDAX and NEMAX segments
- introduction of the trading model crossing
- trading only from a minimum volume upwards in a predefined number of crossings a day

With Xetra Release 6.5 the pre-trade transparency of Block Crossing is extended. Information on order submissions will be provided by initiating a phase change from the pre-call phase to the call phase. Nevertheless, no information on the market side, the volume and the limit of the orders is provided.

## 2 Fundamental Principles of Block Crossing

The exchange market model defines the mechanism of matching orders to trades in the exchange trading system. It describes price determination, prioritization of exchange orders as well as the type and scope of information made available to market participants during trading sessions.

The present version of the market model represents the current status of discussion. The model's final and binding version will be implemented by amendments to the Rules and Regulations of the Frankfurt Stock Exchange (FWB).

The market model Block Crossing is order-driven.

The following fundamental principles for crossing in Xetra were defined during the discussion of the market model:

1. All equities are traded in a predefined number of periodic crossings during the trading day based on a crossing schedule.
  2. Orders are crossed on the basis of crossing prices derived from a reference market. They provide no contribution to price discovery. Therefore, in the context of Block Crossing, order limits serve as execution conditions.
  3. Prices are determined as the current midpoint between the best bid and the best ask of the reference market.
  4. Orders are executed according to volume/time priority.
  5. Trading is completely anonymous, i.e., on the trading screen market participants are neither able to identify the market participant who has entered an order nor the order volumes and limits. Within the trading system, post trade anonymity is assured. The counterparty is revealed at the end of the trading day in the "Schlussnote".
  6. A minimum order quantity exists for each security. Beyond this, only multiples of a predefined minimum tradable unit exceeding this minimum order quantity can be entered into the system.
  7. To assure price quality, crossings are only carried out if the spread in the reference market does not exceed a predefined maximum spread and if the current midpoint does not date back more than a predefined time.
  8. In Block Crossing, only market and limit orders are supported. Orders are valid for one trading day.
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9. Stop orders are not supported. There are no volatility interruptions, no market order interruptions and no order book balancing phases in Block Crossing.
10. A Block Crossing period consists of a pre-call phase, a call phase with a random end.
11. Orders can be entered, modified or deleted during the whole trading day.
12. During the crossing's pre-call and call phase the order book is closed. After the start of a crossing period, the indicative crossing price (midpoint) is displayed if it can be computed and if the spread in the reference market does not exceed a maximum spread.
13. The submission of an order triggers the state change from pre-call to call after the start of a crossing period if they are market orders or if the order limit for a buy (sell) order is equal to or higher (lower) than a predetermined threshold defined by the exchange based on the current midpoint.
14. Trade confirmations are dispatched immediately after the respective trade.
15. The accounting cut-off is carried out daily after the post-trading phase.

### 3 Products and Segmentation

Block Crossing serves as a supplement to the existing Xetra trading under the FWB to allow the trading of large blocks without any market impact. Block Crossing is introduced for DAX, MDAX and NEMAX equities (see diagram 1). In this crossing segment only large blocks exceeding a minimum order quantity can be traded.

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## Trading segments & Trading forms

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**Diagram 1: Trading segments and trading forms (further modifications reserved).**

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## 4 Users of the System

The users of the system can be divided into several categories:

- Traders  
Traders are individuals admitted for exchange trading. A trader can act as agent trader (account A) or as proprietary trader (account P). Orders will be flagged accordingly.
- Trading assistants  
Trading assistants are individuals who support a trader admitted for exchange trading. He/ She is assigned to one trader only who, in turn, is responsible with regard to the exchange for the entries of his trading assistant.
- Other users  
Administrators are users who are not admitted or authorised for trading (they assign and maintain authorisation rights for the member's personnel). This category also includes personnel in settlement, operation, supervision and information users.

Contrary to the existing Xetra OTC Trade Entry, only traders and trading assistants are able to participate in Block Crossing. Nevertheless, the functionality of Xetra OTC Trade Entry is still accessible.

## 5 Order Types

In Xetra Block Crossing only orders exceeding a minimum order quantity can be traded in multiples of a minimum tradable unit.

An order modification leads to a new time priority if the order modification has a negative impact on the priority of the execution of other orders in the order book, e.g., if the volume or the order limit is changed. In case of a new time priority, the order will receive a new order number.

### 5.1 Basic Types

Basically, two types of orders can be entered into the system: market orders and limit orders.

In contrary to conventional limit orders, these limits do not contribute to price determination. Therefore, this limit represents an execution condition which serves as a maximum acceptable price for a buy crossing order or a minimum acceptable price for a sell crossing order (see examples in chapter 9).

### 5.2 Execution Restrictions

No execution restrictions exist in Block Crossing.

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### 5.3 Validity Constraints

Concerning the validity of crossing orders, the market model offers:

- *Good-for-day:* Order only valid for the current exchange trading day.

### 5.4 Trading Restrictions

No trading restrictions exist in Block Crossing.

### 5.5 Treatment of Orders in the Case of Events Affecting Prices

In case of extraordinary events affecting prices (e.g. company news on the equity) the exchange may suspend trading according to the Exchange Rules for the FWB. Existing orders in the system will be deleted. Treatment of orders in the case of events affecting prices is manually synchronised with the treatment of these orders in the reference market of the equity.

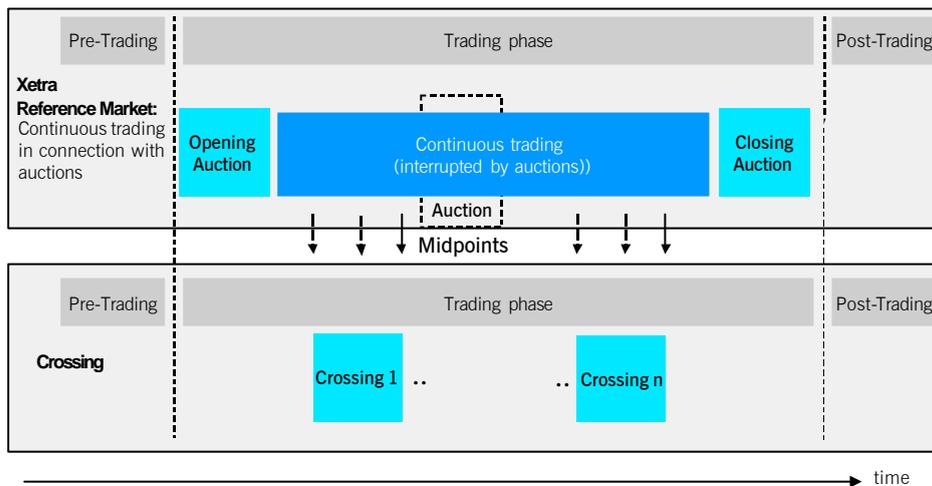
## 6 Trading Phases

Trading takes place in predefined crossing periods based on a crossing schedule. Order entry is available from pre-trading to post-trading.

The system is not available between the post-trading and pre-trading phase of the following day.

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## Flow of trading



**Diagram 2: Flow of trading**

### 6.1 Pre-trading Phase

Market participants can enter orders for preparing the actual trading day and modify or delete these orders. The exchange confirms the member's order entry by order confirmation. Market participants do not receive an overview of the market's order book situation as the order book is closed during this phase. The pre-trading phase is followed by the main trading phase.

### 6.2 Main trading Phase

The main trading phase is subdivided into multiple crossing periods with predefined starts of the crossing phase accompanied by the dissemination of crossing prices (midpoints). In the main trading phase of the Block Crossing trading model, orders exceeding a minimum order quantity can be traded.

### 6.3 Post-trading Phase

After the main trading phase, it is possible to maintain trades in the post-trading phase.

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## 7 Trading Forms

### 7.1 Crossing Periods

This trading model is characterised by a fixed number of intraday Block Crossings based on a predefined trading schedule. The execution of orders in Block Crossing is effected to volume/time priority. Trading is based on crossing prices derived from a liquid reference market. Therefore, a crossing is only possible if a crossing price (midpoint of spreads) can be computed. Market participants are informed on the crossing periods via a crossing schedule.

Crossing Periods consist of

- a crossing's pre-call phase,
- a crossing's call phase with random end.

Between two crossing periods, the trading system is in the pre-call phase. A crossing period starts after a scheduled point in time with the display of the indicative crossing price (midpoint) if such a crossing price can be computed on the basis of the order book information of the reference market. Midpoints are provided to the participants with three decimal points.

After the start of the crossing period, the change of the crossing pre-call phase to the crossing call phase is initiated if there is an order in the order book. Orders are only able to trigger a call phase if they are market orders or if the order limit for a buy (sell) order is equal to or higher (lower) than a predetermined threshold defined by the exchange based on the current midpoint. The change of the trading phase from pre-call to call may occur immediately at the start of the crossing period (see diagram 3) or within the crossing period (see diagram 4). The change from crossing pre-call to call is shown to the market participants. If there are no order entries, or orders not fulfilling the above mentioned criteria, the crossing period ends without switching into the crossing call phase.

During the pre-call phase and the call phase the order book is completely closed.

The call phase has a random end after a predefined minimum period. At the end of the call phase, crossing price determination takes place based on the order book data of the reference market. The orders in the crossing order book itself are not considered in the price determination.

The execution price equals the midpoint of the current spread of the reference market. Volume/time priority ensures that a maximum of one order in the crossing order book is executed partially.

The market participants are informed about trades by way of an execution confirmation which contains the crossing price, the volume and the time of execution. The execution confirmation is followed by a trade confirmation. Trades of the current trading day can be modified; in this case the participants will receive an updated trade confirmation.

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## Block Crossing

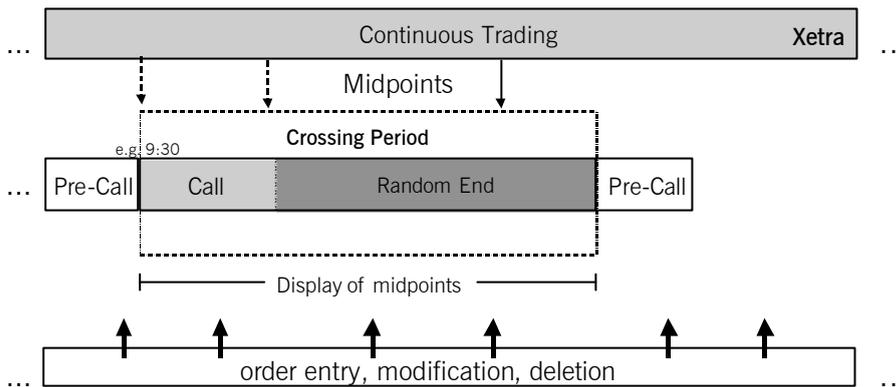


Diagram 3: Flow of a crossing period (Orders fulfilling the crossing criteria submitted before the start of the crossing period).

## Block Crossing

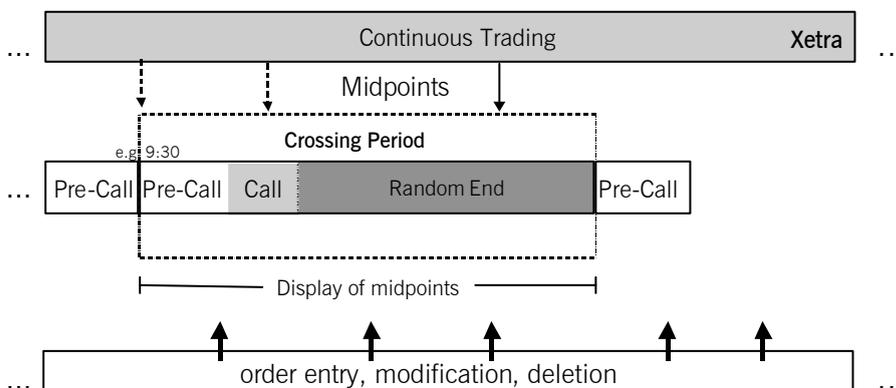


Diagram 4: Flow of a crossing period (Orders fulfilling the crossing criteria submitted within the crossing period).

Non-executed or only partially executed crossing orders are transferred to the next crossing period. This holds also if no crossing price can be computed. Orders are deleted at the end of the trading day as they are only good-for-day.

## 8 Safeguards in Crossings

To assure the quality of the midpoints imported from the reference market, crossing is only carried out if the difference between the best bid and the best ask in the reference market does not exceed a predefined maximum spread per instrument and if the spread of the reference market does not date back longer than a predefined time (which is checked at the triggering of the call phase and at the matching).

## 9 Matching

### 9.1 Basic Matching Rules

Matching in Xetra Block Crossing is based upon the midpoint of the reference market. The orders entered into the Block Crossing segment do not have any influence on price formation.

All market orders, all buy crossing orders with a limit exceeding or equal the current midpoint and all sell crossing orders with a limit below or equal the current midpoint are considered for execution. In the case of an imbalance of buy and sell volume, these orders are matched according to volume/time priority.

### 9.2 Matching Examples

The following examples are meant to clarify the basic matching rules by providing exemplary order book constellations in the Block Crossing order book. Although the examples show the order book, it has to be taken into account that the Block Crossing order book is completely closed.

For the following examples, it is assumed that the order book of the reference market looks like follows:

#### Order book reference market

Bid		Ask	
Volume	Limit	Limit	Volume
600	200	202	700
200	199	203	500
400	198	204	500

The midpoint between best bid and best ask is € 201.

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*Example 1: The order book of the Block Crossing segment is crossed at the midpoint of the reference market. All executable orders at the midpoint are fully executed.*

**Order book Block Crossing**

Order	Bid		Limit	Ask	Order
	Volume	Limit			
A	20000	201,50	200,90	20000	C
B	10000	201	Market	10000	D

The midpoint of the reference market is € 201. Therefore, the buy orders above or equal € 201 and the sell orders below or equal € 201 are potentially executable at this midpoint.

The bid crossing orders A (volume 20000; limit € 201,50) and B (volume 10000; limit € 201) are executed against the ask crossing orders C (volume 20000; limit € 200,90) and D (volume 10000; market) at € 201.

*Example 2: The order book of the Block Crossing segment is crossed at the midpoint of the reference market. One order is executed partially.*

**Order book Block Crossing**

Order	Bid		Limit	Ask	Order
	Volume	Limit			
A	40000	201,50	200,90	50000	D
B	20000	201,30	202	40000	E
C	10000	199	Market	30000	F

The midpoint of the reference market is € 201. Therefore, the buy orders above or equal € 201 and the sell orders below or equal € 201 are potentially executable at this midpoint.

The bid crossing orders A (volume 40000; limit € 201,50) and B (volume 20000; limit € 201,30) are executable against the ask crossing orders D (volume 50000; limit € 200,90) and F (volume 30000; market) at € 201.

As the executable volume on the ask side (80000) exceeds the executable volume on the bid side (60000), order F is executed partially with 10000 shares (corresponding to volume/time priority).

*Example 3: There are only executable orders on one side of the order book at the current midpoint.*

**Order book Block Crossing**

Order	Bid		Limit	Ask	Order
	Volume	Limit			
A	40000	200,50	200,40	50000	D
B	20000	200,30	202	40000	E
C	10000	199	203	30000	F

The midpoint of the reference market is € 201. Therefore, only the sell order D with a limit below € 201 is potentially executable at this midpoint. No execution takes place.

*Example 4: There are no executable orders at the current midpoint.*

<b>Order book Block Crossing</b>					
<b>Order</b>	<b>Bid</b>			<b>Ask</b>	
	Volume	Limit	Limit	Volume	Order
A	40000	200,50	201,40	50000	D
B	20000	200,30	202	40000	E
C	10000	199	203	30000	F

The midpoint of the reference market is € 201. Therefore, no orders are executable at this midpoint. No execution takes place.