

# Market model for the trading procedure Continuous Auction

(Xetra<sup>®</sup> T7 - Release 7.1)

## TABLE OF CONTENTS

1. Introduction.....	4
2. Basic principles of the Market Model .....	5
3. Products and Segmentation .....	6
4. Trading Participants .....	7
4.1. Participants and User Identifications.....	7
4.1.1. Exchange Trader .....	8
4.1.2. Other Users.....	8
4.2. Exchange Member acting as a Liquidity Provider (Issuer) .....	8
5. Orders .....	9
5.1. Order types .....	10
5.1.1. Market Order and Limit Order.....	10
5.1.2. Stop Orders.....	10
5.2. Validity Restrictions .....	10
5.3. Quotes.....	11
5.3.1. Standard-Quotes .....	11
5.3.2. Matching-Quotes .....	11
5.3.3. Price-without-turnover (PWT) -Quotes .....	11
5.4. Persistent Orders and non-persistent Orders .....	11
5.5. Handling of Orders in Case of Events Affecting Prices .....	12
5.6. Knock-Out .....	12
5.7. Sold-Out .....	12
6. Trading .....	13
6.1. Trading Phases.....	13
6.1.1. Pre-Trading Phase.....	13
6.1.2. Main-Trading Phase .....	13
6.1.3. Post-Trading Phase .....	14
6.2. Trading Procedure Continuous Auction .....	14
6.2.1. Pre-Call phase .....	15
6.2.2. Call phase .....	15
6.2.3. Price Determination .....	16
7. Tasks and Obligations of Liquidity Providers .....	17

8. Rules of Price Determination .....	18
8.1. Basic Matching Rules.....	18
Price without turnover (PWT).....	18
8.2. Examples for the determination of the auction price.....	20

## 1. Introduction

The document on hand exclusively describes the trading procedure “Continuous Auction” in Xetra® T7 and is based on the General Terms and Conditions of Business of Wiener Börse AG in the respective valid version. The market model serves as a basis for the rules and regulations; however, these may include further provisions and, in particular, exclude or restrict the use of order and quota types described in this market model.

The market model for the trading procedures "Continuous Trading" (Xetra® T7) and „Auction“ (Xetra® T7) as well as detailed information on the organization of trading in Xetra® T7 on Wiener Börse (Detailed specifications) can be found in separate documents.

Wiener Börse AG uses Xetra® (Exchange Electronic Trading) since November 5th, 1999. Xetra® is a fully electronic trading system for trading on the cash market (equities, bonds and structured products).

As of July 31<sup>st</sup>, 2017, a part of the cash market trading (equities and ETFs) of Wiener Börse was migrated to the modern trading architecture Xetra® T7. Since January 28<sup>th</sup>, 2019, all bonds, certificates and warrants on Wiener Börse are tradable on Xetra® T7. The current version of Xetra® T7 (Release 7.1) was introduced on Wiener Börse on May 27<sup>th</sup>, 2019.

The following market segments can be traded on the trading system Xetra® T7 of Wiener Börse:

- equity market.at
- bond market.at
- structured products.at

## 2. Basic principles of the Market Model

The market model defines the mechanism through which orders/quotes are matched and trades concluded under the trading system of Wiener Börse. This includes price determination rules, the order of priority in which orders are executed through the trading system of Wiener Börse, and the type and scope of information provided to market participants during trading sessions.

For the trading in the trading procedure „Continuous Auction“ on Wiener Börse the following basic principles were defined :

- Instruments can be traded in the trading model “Continuous Auction with Issuer”
- Trading is anonymous, i.e., market participants cannot view their counterparties on the trading screen and are not named in the trade confirmation note.
- All whole-number (integer) order sizes are tradable, i.e. trading of fractions is not supported (Exception: minimum nominal value in the case of bonds).
- One exchange member shall act as liquidity provider per security.
- During the main trading phase, the exchange member acting as liquidity provider enters quotes. These quotes may be changed or deleted.
- Quotes entered by a liquidity provider have to be double sided.
- Quotes can be entered with a zero volume on both sides or on one side only, either on the bid side or on the ask side or with non-zero volume on both sides. However, the limits of the quotes must always have a value (limit > 0). The sell limit (ask) must be higher than the buy limit (bid).
- The order book is partly open (only quotes are displayed) during the pre-trading phase
- The order book is open during pre-call phase and call phase
- The order book is closed during post trading.
- At any point in time, only one price will exist for each instrument.
- Orders in the order book are executed according to price/time priority.
- Prices are determined taking into account the price/time priority according to the principle of highest executable volume only within the range given by the quote or at the bid or ask limit of the quote.
- Price determination: If there are several possible limits with the same surplus on the bid and the ask side or with no surplus on hand, the midpoint of the possible prices is taken into account as an additional criterion.
- After price determination, remaining portions of quotes remain in the order book.
- The accounting cut-off takes place daily after the post-trading phase.

### 3. Products and Segmentation

Trading bonds, certificates and warrants in trading procedure Continuous Auction on Wiener Börse includes instruments which are traded in unit quotation or in percentage quotation. Generally, instruments may be admitted or included in trading in all listing and market segments (Official Market or Vienna MTF).

Trading in certificates on Wiener Börse comprises a variety of instruments. Due to the ever-growing number of these instruments, they have been divided into the following groups:

- Basket certificates
- Index certificates
- Leverage (knock out) certificates
- Discount certificates
- Bonus certificates
- Express certificates
- Guarantee certificates
- Reverse convertibles
- Outperformance certificates
- Other certificates

A warrant (Plain-Vanilla-Warrant or Exotic Warrant) is an exchange-traded security issued as a separate legal instrument that bestows on the holder the right (not the obligation) to purchase a specific number of shares at a predetermined price.

## 4. Trading Participants

In order to participate in trading with securities (cash market) through Xetra® T7, it is necessary for the institution to become a member of Wiener Börse and to have the required technical and human resources – for that purpose the admission requirements of Wiener Börse AG have to be complied with.

In order to trade in Xetra® T7, a participant must have set up a Trading Business Unit. The business logic of Xetra® T7 makes use of the business unit rather than of the participant. Within the Trading Business Unit users can be grouped into trading groups.

### 4.1. Participants and User Identifications

Once admission has been granted, the exchange operating company registers the participant in the Xetra® T7 including the corresponding access rights and issues a participant's identification code (Member-ID). Thereafter the trading participant has to arrange the individual users and do the setup using unique user identification codes (User-ID's) in Xetra® T7. User identification codes with trading functions (so-called Trader-ID's) are authorized by Wiener Börse AG only to persons of a trading participant, who are admitted as an exchange trader or a trader's assistant. The activation of trading specific rights has to be done by the exchange operating company and is required to enter, modify or delete orders and quotes. All other user identification codes entitle the holder only to make queries or are equipped with system administrative or clearing specific rights.

The first half of the Trader-ID – the trader sub group – may be mostly defined by the trading participant, the second half of the code – the Trader-Code – is issued by Wiener Börse AG. In cases of arranging user identification codes for administrators respectively for order routing systems or order entry systems, these user groups will be defined by Wiener Börse AG.

Wiener Börse AG will define securities groups which will be made available to each participant. Participants have the option of adapting the access rights granted to their trading groups to their individual organizational needs. Changes to the access rights for each user identification code are made by the participants themselves and recorded by Wiener Börse AG. These changes are communicated to participants in standardized reports at the end of each trading session.

The users of Xetra® T7 may be classified into the following categories:

#### 4.1.1. Exchange Trader

Exchange Traders are those physical persons that are authorized to place orders and to conclude dealings in the name of Members on the exchange or within the trading system and have been admitted as Traders to the exchange by the exchange operating company.

A trader may trade

- on behalf of clients („Agent Trader“, Account A) or
- on his or her own account („Proprietary Trader“, Account P) or
- on his or her own account on behalf of clients (“Riskless Principal“, Account R), and if applicable act
- as a liquidity provider („Market Maker“, Account M).

Orders will be flagged accordingly. Three hierarchy levels of traders are distinguished. Besides the trader, who can only maintain own orders, there is the Head Trader, who can maintain own orders as well as orders of all other traders within the same trader group.

#### 4.1.2. Other Users

Users of the system who are not admitted to trading (incl. administrators for managing authorization rights for the users of the trading participant), personnel engaged in settlement, operating and supervisory functions, and users of information.

### 4.2. Exchange Member acting as a Liquidity Provider (Issuer)

Members who act as liquidity providers (Account “M”) in the trading procedure “Continuous Auction” are admitted to exchange trading. These exchange members enter binding quotes into the system.



## 5. Orders

All whole-number (integer) order sizes can be traded in Xetra® T7, i.e. trading of fractions is not supported. The minimum trading lot for Xetra® T7 in Vienna has been defined as one (Exception: minimum nominal value in the case of bonds). A change to an order will result in a new time priority if the limit is changed or if the change has a negative impact on the execution priority of other orders in the order book (e.g., increases in the volume of an existing order). If, however, the volume of an existing order is reduced, the original time priority remains valid.

Time priority changes	No change in time priority
▪ Limit ↑	▪ Quantity ↓
▪ Limit ↓	Change in other fields:
▪ Quantity ↑	▪ Validity ↓
▪ Validity ↑	▪ Account
▪ Change of Stop Order	▪ Text
	▪ Internal order number

Figure 1: Time priority (Timestamp) of an order

According to the order number concept, the number of an order remains unchanged when a new time priority is assigned.

Orders can be entered as persistent or as non-persistent orders. Non-persistent orders are automatically deleted as soon as a trading interruption occurs in the corresponding instrument.

For orders flagged as “lean”, the receipt of status information messages is restricted to the session, through which the order had been entered. Furthermore, only such information messages may be recovered via a retransmission request that is about executions and about events, which were not solicited by the owner of the order. For an order that is not flagged as a lean order, the receipt of status information messages is not restricted to the session, through which the order had been entered, and information messages about all events regarding the order may be recovered via a retransmission request.

Xetra® T7 does not accept orders that are both lean and persistent. Orders that are entered through a high-frequency session must always be lean and non-persistent.

## 5.1. Order types

In Xetra® T7, all orders are anonymous. The trading participants cannot see who entered a specific order or quote into the order book.

### 5.1.1. Market Order and Limit Order

The Market Order and the Limit Order are counted among the basic order types in Xetra®. Both order types can be specified further through additional execution conditions, validity constraints and trading restrictions.

- Market Orders — are unlimited buy or sell orders to be executed at the next price that is determined.
- Limit Orders — are limited buy or sell orders to be executed at the set limit price or better.

### 5.1.2. Stop Orders

To support trading strategies, two different types of stop orders are available that are activated after a predefined price level (stop limit) is reached.

- Stop Market Order — When the stop limit is reached (or exceeded for stop buy orders or falls below it for stop sell orders), the stop order is automatically placed in the order book as a market order and may be executed immediately.
- Stop Limit Order — In the case of a stop-limit order, when the stop limit is reached (or exceeded for stop buy orders or if it falls below it for stop loss orders), the stop order is automatically placed in the order book as a limit order and may be executed immediately.

Any change to a stop order gives it a new time stamp.

## 5.2. Validity Restrictions

Further restrictions may be imposed to specify the period of time for which an order is valid. The market model provides the following options:

- Good-for-day (GFD) — This order is valid only for the current trading day.
- Good-till-date (GTD) — This order is valid only up until a specified date.
- Good-till-cancelled (GTC) — This order is valid until it has either been executed or cancelled.
- Good-till-cancelled — This order is valid until it has either been executed or cancelled by the trader or by the system.

## 5.3. Quotes

Additionally, Xetra® T7 allows participants registered in the system as liquidity provider to enter quotes. Quote is the simultaneous entry of limited buy and sell order. Quotes are valid only for the day on which they are entered into the system.

The following three types of quotes are supported:

- Standard quotes
- Matching quotes to end a call phase
- Price-without-turnover quotes to determine a price without turnover

### 5.3.1. Standard-Quotes

Standard quotes can be entered during the pre-trade or pre-call phase only. This quote must be entered double sided – always with a bid AND ask limit. There are no predefined minimum quantities for quotes so that the quantity can also be zero.

### 5.3.2. Matching-Quotes

Matching quotes can be entered during the pre-trade-, pre-call and call phase and can be used to initiate a change from the pre-call phase to the call phase. This quote must be entered double sided – always with a bid AND ask limit. There are no predefined minimum quantities for quotes so that the quantity can also be zero.

### 5.3.3. Price-without-turnover (PWT) -Quotes

PWT quotes can be entered during the pre-call phase only and are primarily used to determine a valuation price. This quote must be entered double sided – always with a bid and ask limit and a quantity of zero (price without turnover!). The limit of the sell-side (ask) must be higher than the limit on the buy-side (bid). The PWT quote updates the reference price based on the buy limit (Bid). Since PWT quotes do not generate a matching in the traditional sense, the quote remains in the order book after the price determination.

## 5.4. Persistent Orders and non-persistent Orders

- Persistent Orders — Will not be deleted from the order book in exceptional circumstances, i.e. in case of a partially or fully interruption of the Xetra® trading system (=Market Halt).

- Non-persistent Orders — Will be deleted from the order book automatically in exceptional circumstances, i.e. in case of a partially or fully interruption of the Xetra® trading system (=Market Halt).

Quotes are never persistent. Quotes are always automatically deleted in case of a complete or partial technical interruption of the trading system Xetra® (= Market Halt).

## 5.5. Handling of Orders in Case of Events Affecting Prices

The exchange operating company may have orders deleted before expiry if this step is necessary and appropriate to ensure a well-functioning securities market in the interest of the national economy or to safeguard the legitimate interests of investors.

In other words, in the case of extraordinary price-influencing events (eg company news), the exchange operating company may suspend trading. If a suspension is made all existing orders and quotes in the trading system will be deleted (in case of interruption (Halt), only non-persistent orders are deleted).

## 5.6. Knock-Out

Certificates for which the knock-out barrier or a stop-loss limit has been reached must be reported by the issuer to Wiener Börse. Once the information has been received from the issuer, the certificate will be suspended from trading. As a result, all open orders and quotes in the affected instrument are deleted from the order book and a corresponding message (including ISIN, name, residual value, etc.) is published in the Xetra® T7 Newsboard.

## 5.7. Sold-Out

If a liquidity provider has sold his entire available volume (quantity) of a structured product, the instrument is "sold-out" and Wiener Börse has to be informed immediately. Wiener Börse then moves the instrument in the "Sold-Out" status. As a result, the quote of the liquidity provider is deleted, while all orders in the order book remain active. Furthermore, trading participants will be informed about the event with a message in the Xetra® T7 Newsboard.

For the duration of the sold-out, the liquidity provider can only enter quotes on the buy side with a certain amount, while the amount on the sell side must be zero.

Once the liquidity provider again has a sufficient volume (quantity), the "Sold-Out" status can be annulled by Wiener Börse.

## 6. Trading

In this chapter the trading phases and trading procedures for Xetra® T7 are presented.

### 6.1. Trading Phases

Trading takes place throughout the entire day and starts with the pre-trading phase followed by the main trading phase and ends with the post-trading phase.

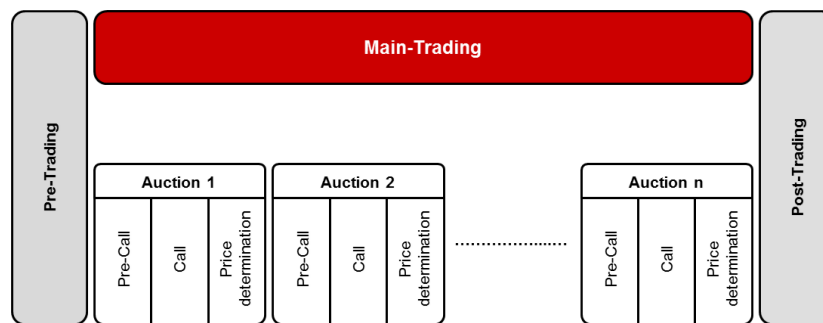


Figure 2: Trading procedure Continuous Auction

The system is not available in the time between the post-trading phase and the pre-trading phase.

#### 6.1.1. Pre-Trading Phase

The trading day starts with the pre-trading phase. All market participants may enter or delete orders and quotes to prepare for the actual trading day or may modify their existing orders. The exchange confirms the members order entry and maintenance by order confirmation.

For market participants, the order book is partially open during this phase (only Quote is displayed) and additionally the last price fixed is shown.

#### 6.1.2. Main-Trading Phase

The start of the main trading phase is triggered at the end of the pre-trading phase. Orders are matched in auctions. Generally, an auction has two phases: pre-call (an optional call phase) and the price determination phase.

During the pre-call and call phase all market participants may enter, modify or delete orders. Furthermore, exchange members acting as liquidity providers may enter or delete quotes.

The order book is open. Additionally the last price fixed is displayed.

### 6.1.3. Post-Trading Phase

The start of the post-trading phase is triggered after the end of the main trading phase. If an auction is still running at this time, it will be ended regularly, and therefore, post-trading in the concerned security might start only after the maximum period for the call-phase ends.

Orders may be entered during the post-trading phase and existing orders may be modified or deleted. Newly entered orders are considered on the subsequent trading day in the corresponding trading model depending on any validity restrictions.

Furthermore, orders already concluded may be modified in the post-trading phase. All trade attributes that do not require the consent of the counterparty (e.g. clearing account, internal order number of exchange member, text, account-ID, etc.) may be changed afterwards.

Quotes may not be entered during the post-trading phase. Any quotes still left will be deleted in the end-of-day processing by the trading system. The order book is closed during this phase. Neither market participants nor the exchange members acting as liquidity provider are permitted to view the market situation. Only the last price fixed is displayed.

## 6.2. Trading Procedure Continuous Auction

For trading in certificates and warrants Wiener Börse offers the trading model "Continuous Auction".

Liquidity is bundled in the auction by taking into account market orders, limit orders and, if applicable, stop orders as well as quotes. The auction price is determined by applying the principle of highest executable volume within the range specified by a quote or exactly at the bid or ask limit of the quote. The execution of orders takes place according to price and time priority.

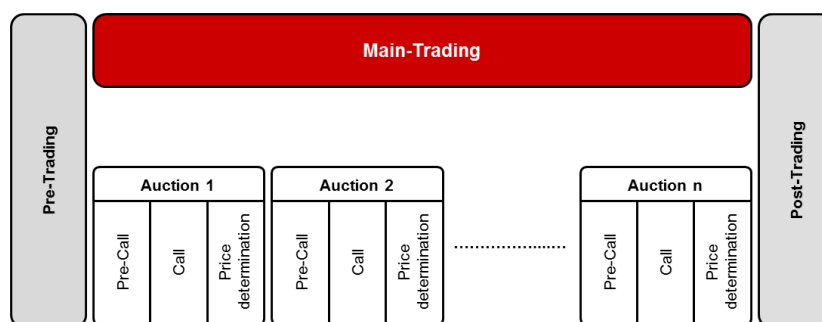


Figure 3: Procedure of Continuous Trading

An auction consists of the pre-call phase, an optional call phase and price determination. The optional call phase serves to avoid partial execution and supports the processing of stop orders. The number of auctions during the main trading phase and the time periods between the individual auctions and the duration of the pre-call phase is determined primarily by the Issuer. This is influenced by the quality of the quotes (quote volumes and spreads) as well as his/her response times during the call phase. Moreover, further factors of influence are the defined maximum duration of the call phase and order book liquidity.

### 6.2.1. Pre-Call phase

During the pre-call phase orders and quotes can be entered or deleted, as well as existing orders can be changed. During the pre-call phase, the order book is open. This means that orders and quotes are displayed with the cumulative quantities as well as the bid / ask limit.

From the pre-call phase a change to the price determination is possible if

- a quote of the liquidity provider is in the order book to define the price range for the price determination and
  - if there is a crossed order book within the spread of the quote without generating a partial execution of an order or
  - if there is a crossed order book at the ask or bid limit of the quote without generating a partial execution of an order.

From the pre-call phase a change to the call phase is possible if

- there is a potential executable order book situation (i.e. a market order or a crossed order book situation) without an available quote of the issuer or
- if the volume of the executable orders at the quote exceeds the quote volume (including the volume of executable opposing orders) or
- a stop limit is reached by the quote.

No maximum duration is defined for the pre-call phase. If there is no order in a specific instrument, the instrument remains in the pre-call phase for the entire main trading phase.

### 6.2.2. Call phase

During the call-phase all market participants may enter, modify or delete orders. Furthermore, exchange members acting as liquidity providers may enter or delete quotes. During the call phase the order book is open. Additionally the last price fixed is displayed. In case of an executable order book only the potential

executable volume for the indicative auction price is displayed to the respective liquidity provider. The indicative auction price is published neither to the liquidity provider nor to the market.

The call phase does not have any defined minimum duration. The duration may vary depending on the response times of the issuer and on the liquidity of the respective instrument. The call phase has a maximum duration and does not end randomly. However, it can be ended by the liquidity provider before the expiry of the maximum duration.

From the call phase a change to the price determination is possible if

- a matching quote is in the order book and
  - a full execution of the executable orders is possible or
  - there is a crossed order book within the spread of the quote or
  - the defined maximum duration of the call phase has expired.

From the call phase a change to the pre-call phase is possible if

- there is no executable order book situation anymore due to order modification or quote update or
- the existing quote has been deleted during the call phase.

### 6.2.3. Price Determination

Price determination takes place when the order book – starting out from order book situation at the end of the pre-call or call phase – is crossed within the spread defined by the quote or orders can be executed at the bid or ask limit of the quote. Price determination takes into account all quotes and all orders that are in the order book at the time of price determination.

The auction price is the price at which the highest order volume can be executed and the lowest surplus per limit in the order book is given within the price spread defined by the quote (incl. bid and ask limit of the quote). The price/time priority ensures that a maximum of one order is executed partially. If the order book situation is unclear, i.e., there is more than one limit with the same executable volume, further criteria are applied to determine the auction price. After price determination, the remaining quote is not deleted.

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



## 7. Tasks and Obligations of Liquidity Providers

In the trading procedure “Continuous Auction”, it is the task of the exchange member acting as liquidity provider for a certificate or warrant to provide central liquidity for the respective securities. This entails the following tasks and obligations:

- to make market information continuously available in the form of standard quotes or matching quotes throughout the entire main trading phase
- to guarantee that the standard quotes defined in the system match the information disseminated via other electronic media at the time by the exchange member acting as liquidity provider
- immediate reporting when the price of an instrument with a knock-out barrier reaches, exceeds or falls below the knock-out barrier.
- Immediate reporting when they have sold their entire available quantity of a structured product (sold-out).

## 8. Rules of Price Determination

In this section the rules of price determination (matching rules) for trading procedure Continuous Auction is described.

### 8.1. Basic Matching Rules

The auction price is determined based on the quotes and order book situation as fixed at the end of the call phase. The basic rules for calculation of the auction price by the system according to the modified principle of highest executable volume are explained below.

The auction price is the price at which the highest executable order volume and the lowest surplus for each limit in the order book within the price spread, set by the quote of the liquidity provider (→ see example 1).

If there is more than one limit at which the highest executable order volume and the lowest surplus is given within the price spread (including bid and ask limit of the quote), then the auction price is determined on the basis of the surplus.

- If the surplus for each of the limits lies within the price spread (including bid and ask limit of the quote) on the buy side (demand surplus), then the auction price is calculated based on the highest limit (→ see examples 2 and 6).
- If the surplus for each of the limits lies within the price spread (including bid and ask limit of the quote) on the sell side (supply surplus), then the auction price is calculated based on the lowest limit (→ see examples 3 and 7).

If consideration of the surplus does not lead to a clear auction price, the midpoint of the possible prices is included as additional criterion. This may be the case if there is for several limits no surplus on hand (→ see examples 4 and 8) or if there is an equal surplus on the bid and the ask side (→ see example 9)

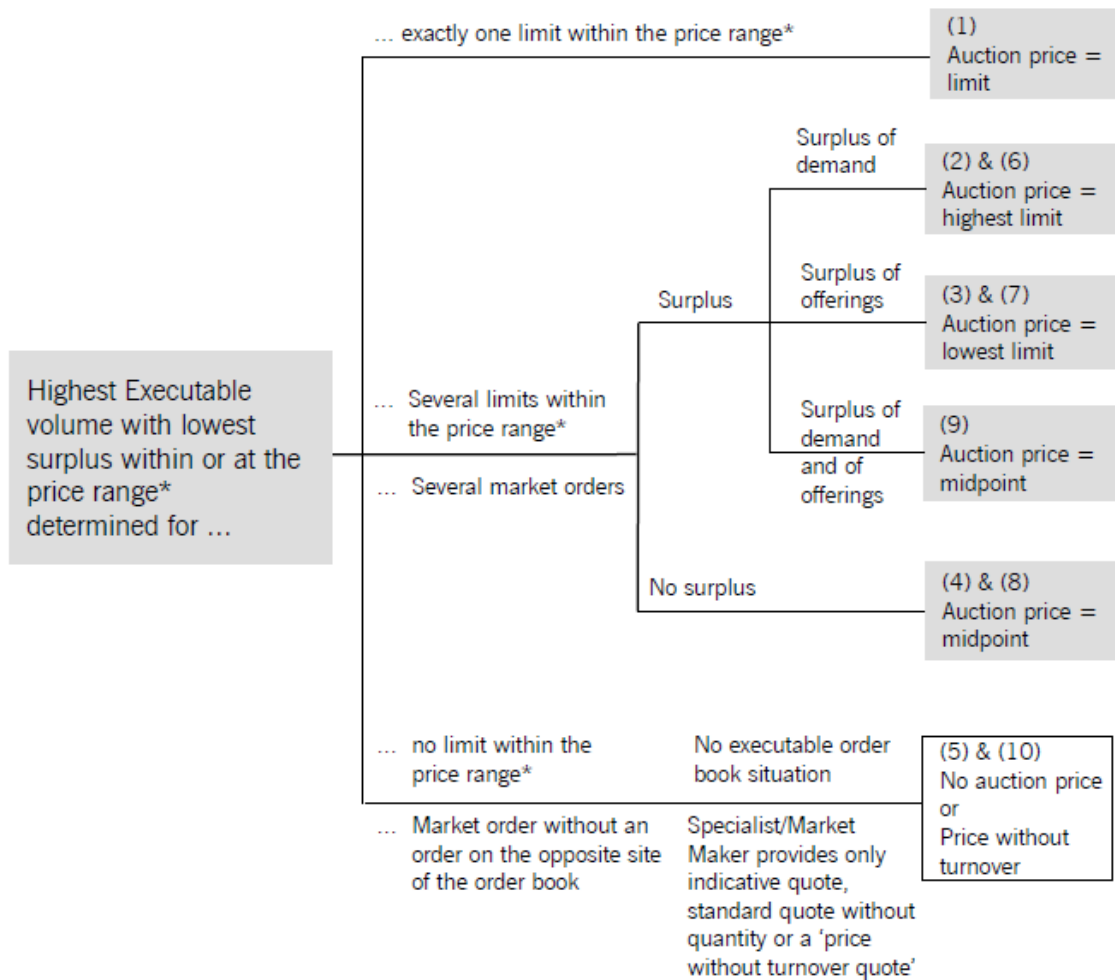
- The midpoint is calculated on the eligible highest and lowest limits and serves as auction price.

If there are no executable orders within the price spread (including bid and ask limit of the quote), then it is not possible to determine an auction price with turnover (→ see example 5).

#### Price without turnover (PWT)

This type of price determination is triggered exclusively by the exchange member acting as liquidity provider by entering a separate quote (price-without-turnover quote).

The following diagram shows how price determination rules affect possible order book constellations in Continuous Auction. The number in brackets refers to the corresponding example for this rule.



\* Specialist/Market Maker quote with or without quantity. Bid and ask limit of the Specialist/Market Maker quote have to be included.

Figure 4: Matching Rules in Continuous Auction

## 8.2. Examples for the determination of the auction price

This chapter provides matching examples that cover the order book situations mentioned in the figures presented above. The examples below illustrate the calculation of the auction price. Therefore it is always an integer auction price.

### ■ Example 1:

There is exactly one limit at which the highest order volume can be executed and which has the lowest surplus.

Buy				Sell		
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume
			202	800	800	
			201	800	800	
300	300		200	500	800	100
200	500		199	200	700	
300	800	100	198		700	300
	800	400	197		400	400
Quote	100	900	196			

An auction price at a limit of € 198 with a quantity of 700 and a surplus of 100 on bid side is calculated.

### ■ Example 2:

There are several possible limits and there is a surplus of demand.

Buy				Sell		
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume
			202	900	900	
			201	900	900	400
600	600	100	200		500	
	600	100	199		500	100
	600	200	198		400	100
Quote	200	800	197		300	300

An auction price corresponding to the highest limit at € 200 with a quantity of 500 and surplus of 100 on bid side is calculated.

■ Example 3:

There are several possible limits and there is a surplus of supply.

	Buy			Sell			
	Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume
	300	300		202	500	800	
	100	400		201	400	800	200
		400		200	200	600	
	100	500		199	100	600	
		500		198	100	600	600
Quote	400	900	900	197			

An auction price corresponding to the lowest limit at € 198 with a quantity of 500 and surplus of 100 on ask side is calculated.

■ Example 4:

There are several possible limits and no surplus on hand.

	Buy			Sell			
	Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume
				203	600	600	100
	300	300		202	200	500	
	200	500		201		500	
		500		200		500	
		500		199		500	300
		500	300	198		200	200
Quote	100	600	600	197			

An auction price corresponding to the midpoint of the possible prices is calculated at € 200  $((199 + 201)/2)$  with a quantity of 500.

■ Example 5:

There is no possible limit.

Buy				Sell			
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume	
			202	500	500	300	Quote
			201	200	200	200	
100	100	100	200				
Quote	300	400	199				

It is not possible to determine an auction price.

■ Example 6:

Only market orders are executable in the order book with a surplus of demand. Issuer offers no additional liquidity.

Buy				Sell			
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume	
200	200	100	Market		100		
	200	100	202		100	0	Quote
	200	100	201		100		
	200	100	200		100		
Quote	0	200	199		100		
	200	100	Market		100	100	

The auction price is calculated corresponding to the limit of the issuer quote on the ask side with € 202, a quantity of 100 and a surplus of 100 on the bid side.

■ Example 7:

Only market orders are executable in the order book with a surplus of supply. Issuer offers no additional liquidity.

Buy				Sell			
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume	
100	100		Market	100	200		
	100		202	100	200	0	Quote
	100		201	100	200		
	100		200	100	200		
Quote	0	100	199	100	200		
	100		Market	100	200	200	

The auction price is calculated corresponding to the limit of the issuer quote on the bid side with € 199, a quantity of 100 and a surplus of 100 on the ask side.

■ Example 8:

Only market orders are executable in the order book with no surplus. Issuer offers no additional liquidity.

Buy				Sell			
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume	
100	100		Market		100		
	100		202		100	0	Quote
	100		201		100		
	100		200		100		
Quote	0	100	199		100		
	100		Market		100	100	

An auction price corresponding to the midpoint of the possible prices is calculated at € 201  $((199 + 202)/2 = 200,5)$  rounded to the next tick size which is assumed to be 1€) with a quantity of 100.

■ Example 9:

Orders are executable within or at the issuer quote and an equal surplus on both sides. (Price determination between order limits)

Buy				Sell		
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume
			203	1200	1200	
100	100		202	1100	1200	1000
	100		201	100	200	100
	100		200		100	
100	200	100	199		100	
Quote	1000	1200	1100	198	100	100

An auction price corresponding to the midpoint of the possible prices is calculated at € 200  $((199 + 201)/2)$  with a quantity of 100.

■ Example 10:

There are no executable orders in the order book. Issuer enters a price-without-turnover-quote (pwt-quote).

Buy				Sell		
Volume	Accumulated Volume	Surplus	Limit	Surplus	Accumulated Volume	Volume
			202			0
			201			
Quote	0		200			

An auction price corresponding to the bid limit of the pwt-quote is calculated at € 200 with a quantity of 0.



**Table of Figures**

Figure 1: Time priority (Timestamp) of an order .....9  
Figure 2: Trading procedure Continuous Auction ..... 13  
Figure 3: Procedure of Continuous Trading ..... 14  
Figure 4: Matching Rules in Continuous Auction ..... 19

## Disclaimer

The information in this document is provided exclusively for information purposes. It does not constitute any legal or investment advice. Wiener Börse AG does not assume any liability for the completeness or correctness of the information in this document. Therefore, no one should rely on the information contained herein. Wiener Börse AG does not assume liability for any damages that may arise due to actions taken on account of the use of this document.

Should parts or individual phrases in this disclaimer fail to comply with applicable law or no longer comply or fail to be fully in line with the law, the contents and the validity of the remaining parts of the document shall remain unaffected.