Market Model & Functionality

Nasdaq Derivatives Markets

Nordic Equity Derivatives

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1 General

1.1 Introduction

This document describes the market model and feature functionality available in the electronic system used by Nasdaq Stockholm AB (the “Exchange”) for equity derivatives trading. The document focuses specifically on business functionality and parameters related to order book trading and off-book trade registration as well as pre- and post-trade market information.

The target audience of this document includes market participants and persons involved in the design and development of client applications that access the Trading System.

While the document has been prepared on the basis of the best information available at the moment of preparation, the Exchange accepts no liability for any decisions taken or system or functionality configurations carried out by any party based on this document.

While the Exchange Rules of Nasdaq Derivatives Markets (the “Exchange Rules”) is a legally binding document between members and the Exchange, the purpose of this document is to provide additional guiding information. This document does not form part of the contractual documentation between the Exchange and its members or other customers. Content of this document may also be subject to discussions and in some cases approval from relevant authorities.

1.2 Document History

Revision	Published	Notes
3.0.0	14 Mar 2022	Final document revision for the 2022 trading replatform, that will be effective 28 Mar 2022.
3.0.1	6 May 2022	Minor update related to how acceptable price variation may be increased by a factor (13.1.1.1.3).
3.0.2	21 June 2022	VINX30 Futures delisted

1.3 Abbreviations & Definitions

"BBO"	Best Bid and/or Offer
"FOK"	Fill-or-Kill
"IOC"	Immediate-or-Cancel
"GTC"	Good-till-Cancel
"GTD"	Good-till-Date
"LOC"	Limit-On Close
"LOO"	Limit-On Open
"MOC"	Market-On Close
"MOO"	Market-On Open
"Exchange"	Nasdaq Stockholm AB in its capacity as a securities exchange.
"Trading System"	Means the Exchange's electronic system used for equity derivatives trading that receives, disseminates and executes orders and quotes; and registers and reports trades.
"Exchange Rules"	The Exchange Rules of Nasdaq Derivatives Markets, available at the Derivatives Rules web page.
"Contract Specifications"	Chapter A and B of the Exchange Rules.
"Quotation List"	Appendix 1 of the Exchange Rules.
"Clearing House"	Nasdaq Clearing AB in its capacity as a clearing organisation.
"Clearing System"	The system used by the Clearing House for the clearing of derivatives contracts.
"Exchange Notice"	Notice provided by the Exchange to market participants via the Nasdaq Nordic subscription service.
MiFID II	Means Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU
MiFIR	Means Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012

2 Products & Instruments

2.1 Market Structure & Segmentation

Equity derivatives trading take place on the Exchange's regulated market Nasdaq Stockholm, Exchange MIC XSTO.

All trades are centrally cleared by Nasdaq Clearing AB (the "Clearing House"), operating MIC CSTO.

Nasdaq Derivatives Markets, secondary name to Nasdaq Stockholm AB, is used for the derivatives exchange and clearing activities of Nasdaq Stockholm AB and Nasdaq Clearing AB together.

The Exchange's equity derivatives market comprises the following country segments:

Market Segment	Segment MIC
Swedish Equity Derivatives	SEED
Danish Equity Derivatives	DKED
Finnish Equity Derivatives	FIED
Norwegian Equity Derivatives	NOED

Table 1: *List of MIC Codes*

Each tradeable instrument in the Trading System belongs to one market segment.

The market segmentation reflects the different underlying stock markets and settlement currencies for which derivative instruments are available.

Instruments within a market segment follow the same general trading hours and share holiday and half-day calendars. Additionally, all single-stock derivatives with physical delivery within a market segment have the same settlement arrangement.

2.2 Instrument Types & Groupings

Within each market segment, the Exchange lists and organises trading in different types of instruments including options, futures and forwards and their related combinations.

Instruments across market segments can be categorised into three distinct groups with respect to instrument characteristics and definitions as outlined in the following sub-sections.

2.2.1 Standard Instruments

Standard instruments are individual options, futures or forwards that have standardised terms and conditions as set out in the Exchange's and Clearing House's joint contract specifications and quotation list.

On a periodic basis, the Clearing House automatically generates and provides the Trading System with new standard expiries and strike prices in accordance with the quotation List. Automatic instrument creation takes place after market close and the instruments become active as part overnight processing so that they are available to users in reference data at Trading System start-up.

As set out in the Exchange Rules, new instrument expiries and/or strike prices can under certain circumstances be created intraday. This can be either on the Exchange's own initiative in case of significant price movements in the underlying, or based on requests from Members via telephone or email. In an intraday creation scenario, the created instruments are disseminated on reference data feeds and immediately become available for trading. The expiries and/or strike prices created will conform to the policy defined in the quotation list.

An overview of the standard instruments available for trading under the different market segments can be found in Table 2 below. The complete list of underlyings for which derivatives are listed can be found in the quotation list as updated by the Exchange from time to time.

Market Segment	Underlying	Instrument Type	Settlement Method
SEED	OMXS30	Futures	Cash
		Options	Cash
	OMXESG	Futures	Cash
	S30MIN	Futures	Cash
	OMXDIV	Futures	Cash
	OMXSB	Futures	Cash
	Swedish Stocks (including ETF)	Options	Physical
		Forwards	Physical
		Futures	Physical
			Cash
DKED	OMXC25	Futures	Cash
		Options	Cash
	Danish Stocks	Options	Physical
		Futures	Physical
			Cash
NOED	OMXO20	Futures	Cash
		Options	Cash
	Norwegian Stocks	Options	Physical
		Forwards	Physical
		Futures	Physical
			Cash
FIED	Finnish Stocks	Options	Physical
		Forwards	Physical

Table 2: *Scope of Standard Instruments*

2.2.1.1 Standard Expiries

Two types of expiries may be listed for standard products:

- **Monthly Expiries:** Defined as calendar months with the expiration date normally being the third Friday of the respective month. In case such day is a holiday or a half trading day, the expiration day will be the backward closest trading day, typically the preceding Thursday.
- **Weekly Expiries:** Defined as weeks of the first, second, fourth and where applicable fifth Friday in a calendar month. The expiration date is normally the given Friday and will never coincide with a monthly expiration date. In case the Friday is a holiday or half trading day, the expiration date will be the backward closest trading day, typically the preceding Thursday.

Futures products only have monthly expiries while the Exchange defines per options product whether in addition to monthly, also weekly expiries are generated.

The expiry type attribute part of each instrument's definition in reference data indicates whether it is a monthly or weekly expiry.

2.2.1.2 Standard Terms

An instrument's term is the period from the first day of trading until the expiration date. The Exchange defines standard instrument lifetime cycles consisting of standard terms in number of months or weeks depending on expiry type as well as eligible expiration months or weeks as follows:

- **Monthly Expiries:**
  - Instruments with 3 months term expire every calendar month or in Jan, Feb, Apr, May, Jul, Aug, Oct and Nov ("serial months") depending on whether quarterly and far-dated months are listed for the concerned product
  - Instruments with 12 or 18 months term expire in Mar, Jun, Sep and Dec or Mar, Jun, and Sep ("quarterly months") depending on whether far-dated expiries are listed for the concerned product
  - Instruments with 24, 36 or 60 months term expire in Dec ("far-dated month")
- **Weekly Expiries:**
  - Instruments with 4 or 5 weeks term expire the in the week of the first, second, fourth or if applicable fifth Friday of a calendar month

The Exchange groups underlyings and defines per group the different standard terms as set out from time to time in the quotation list.

Example 1 below illustrates the terms for stock options on the Swedish market segment.

Group 1: Products in this group have 3, 12 and 36 months terms so that three quarterly, three far-dated and two serial months are available for trading at all times, with the nearest three monthly expiries being consecutive calendar months.

Group 2: Products in this group have 3, 12 and 24 months terms so that three quarterly, two far-dated and two serial months are available for trading at all times, with the nearest three monthly expiries being consecutive calendar months.

Group 3: Products in this group have 3 and 12 months terms so that three quarterly, one far-dated and two serial months are available for trading at all times, with the nearest three monthly expiries being consecutive calendar months.

Group 4: Products in this group have only 3 months terms so that the three nearest consecutive calendar months are available for trading.

Weekly Options: Products that have weekly expiries have 4-5 weeks terms so that at least the four nearest consecutive calendar weeks are available for trading when considering also the nearest monthly expiry (third week).

Example 1: *Terms for Swedish Stock Options*

2.2.1.3 Strike Price Generation Rules

The Exchange defines strike price generation rules for groups of option products typically per market segment and by underlying and expiry type. The groups and the from time to time applicable strike price policy can be found in the quotation list.

Each strike price policy defines for the concerned products:

- In relation to the spot price, the number of calls and puts, respectively, that is initially created and at least available for trading on the following days.
- The step between strike prices within defined price ranges per maturity.

On each trading day, additional strike prices are generated in accordance with the applicable policy per underlying after market close based on the respective underlying closing price.

The following example illustrates the strike price policy for regular OMXS30 index options.

Strike Price Steps by Price and Months Until Expiration

Price Range	<=1	<=3	<=12	<=36	36+
0 – 1,000	5.00	5.00	10.00	20.00	40.00
1,000 -	5.00	10.00	20.00	40.00	40.00

Number of Strikes Available by Maturity

Price Range	<=1	<=3	<=12	12+
Above	20	20	13	7
ATM	1	1	1	1
Below	30	20	25	13

Example 2: *Strike Price Policy – Regular OMXS30 Index Options*

2.2.1.4 First Time of Trading

The first day of trading for a new standard expiry is defined per expiry type as follows.

- **Monthly Expiries:** Five trading days before the expiration date of the nearest monthly expiry of a given product. Normally the Monday in the week of the third Friday of the calendar month. In case such day is a holiday or half trading day, the first day will be the backward closest trading day, typically the preceding Friday. E.g., there are five days of overlap where an additional serial, quarterly or far-dated month is available for trading.
- **Weekly Expiries:** The Friday of the corresponding week in the preceding calendar month. I.e., the fourth Friday weekly expiry in July starts trading on the fourth Friday in June. In case such day is a holiday or a half trading day, the first day will be the backward closest trading day, typically the preceding Thursday. For fifth Friday expiries, if there is no fifth Friday in the preceding month, the first day is normally the first Friday of the current month.

An instrument starts trading on the first day in accordance with regular trading hours.

2.2.1.5 Last Time of Trading

An instrument's last trading date is synonymous with the expiration date of that instrument.

Generally, an instrument is available for trading on the last trading date until the regular closing time for the relevant market segment or product as defined in section 5.1. For products that have a post-trading session, including OMXS30 index futures, this means that an instrument is available for trading until the end of the closing auction on the expiration day.

Certain instruments end trading on their expiration day ahead of the regular close, as specified in section 5.1.6.

2.2.2 Flexible Instruments

Flexible instruments are similar to standard instruments in that they are individual options, futures or forwards. They are different from standard instruments in that they are only created upon request from users for trade registration, and that the contract terms and conditions are flexible allowing users to customise the contract terms and conditions based on the available parameters set out in the Contract Specifications.

User requests to create flexible instruments are sent via the trading interfaces. The request is validated by the Trading System and if it is accepted the instrument is automatically created, disseminated on reference data feeds and immediately becomes available for trading.

Once a flexible instrument has been created, trades can be registered in the same way as a in standard instruments, with the exception that order book trading is not supported for flexible instruments. In the Trading System, flexible instruments belong to the same market segment as corresponding standard instruments on the same underlying.

The Exchange enables/disables flexible instrument creation by underlying and defines the level of customisation based on the selected underlying.

When requesting the creation of a flexible instrument, users may tailor the following parameters:

- Underlying (list of eligible symbols)
- Instrument type (available types for the symbol; option, future or forward)
- Settlement method (available methods for the symbol; cash settlement or physical delivery)
- Expiration date (date up to defined max maturity for the symbol)
- Option type (call or put)
- Strike price (within defined range and decimal precision for the symbol)
- Exercise style (for options available styles for the symbol; European or American)

More information on flexible instruments, including scope of underlyings and trade registration related parameters for underlyings on which standard instruments are not listed, can be found at the flexible derivatives web page.

2.2.3 Complex Instruments

Complex instruments define different combinations available in the Trading System that users can trade in the same way as standard instruments using normal orders and quotes.

A combination is a multi-legged trading strategy that involves the simultaneous buying and selling of two or more different standard instruments.

The Trading System supports two models for creating complex instruments:

- **Pre-Defined Combinations:** Standard index futures spreads that are automatically created by the Trading System on a periodic basis and inherit their last trading date and time from the nearest leg instrument.
- **User-Defined Combinations:** Options combinations and spreads and single-stock futures/forwards spreads are created by the Trading System on request from users and are only available to trade until regular market close on the day of creation. The very same strategy can be traded again on the next or a subsequent day, but in such case through a new complex instrument.

More information on complex instruments and how the Trading System executes combination orders can be found in section 8.

2.3 Instrument Identifiers & Symbols

2.3.1 Underlying Symbols & ID Codes

The scope of underlying instruments include Nordic stock market indices as well as individual Nordic equities including ETF.

Underlying symbols are unique mnemonics that denote the different underlying objects of reference for derivative instruments. The symbols are common and reflected in both Trading and Clearing Systems.

The underlying symbol used for standard options and futures is typically similar to or the same as the underlying asset's ticker code. In case of stocks that have several classes, the symbol is normally a concatenation of the company abbreviation and any class identifier without any space between.

An underlying symbol belongs to one market segment. Dual-listed stocks have different stock ticker codes and correspondingly different underlying symbols are associated with different market segments.

Each underlying symbol is assigned a corresponding and unique numeric underlying ID code that is the primary product identifier used in the trading protocols (e.g. for order and quote mass-handling requests).

ⓘ **Note:** The underlying symbol is sometimes different for the same underlying asset for special settlement instruments, e.g. "S30MIN" for the Mini OMXS30 Future with a contract multiplier of 10 versus "OMXS30" for the regular OMXS30 Future with a contract multiplier of 100.

2.3.2 Product (or Instrument Class) Symbols

Instruments of the same type that reference the same underlying asset and share the same contract specification are grouped into products (or instrument classes) and associated with a unique product symbol.

The product level is relevant from a trading perspective as it identifies the lowest level of application of market model related parameters including reference price configuration and thresholds for circuit breakers, pre-trade controls and block trades. Certain products like index futures will also have additional trading phases in addition to the market segment default.

Information on the symbology used for products can be found in Annexe A

2.3.3 Instrument ID Codes & Symbols

In the Trading System each instrument has its own order book, the two are synonymous, and both identified by their unique instrument ID[1].

The instrument ID is assigned by the Trading System to every instrument (including complex) and is a numeric code that is unique within the Trading System throughout the lifetime of the instrument. This is the primary instrument identifier used in order and trade messages in trading and market data protocols.

Additionally, the instrument symbol is a human-understood ticker code for the respective instrument and typically used by traders and clients for identification and display purposes. The Clearing System assigns every instrument a descriptive symbol that is also reflected in the Trading System. Each instrument symbol is a concatenation of a root symbol identifying either the underlying or the product, and short codes each denoting a defining attribute of the individual instrument (or the component legs in case of combinations).

An instrument's name is unique within the Trading and Clearing Systems throughout the lifetime of that instrument. If following the expiration of one instrument a new instrument is later created with similar definitions, then it is possible that the same concatenation of characters is reused. E.g., consider a Dec'20 vs. a Dec'30 expiry for two otherwise identical sets of instrument attributes.

Information on the symbology used when creating the instrument symbols can be found in Annexe A.

[1] In some circumstances and technical documentation referred to as the Order Book ID.

2.4 Contract Adjustments

The Clearing House may adjust outstanding derivative contracts related to underlying stocks in case of extraordinary dividends paid by a company or certain other corporate events in order to maintain contract values. The applicable events and detailed procedures for how adjustments are carried out are set out in the contract specifications of the Exchange Rules.

The Clearing House carries out an adjustment for an underlying symbol after market close on the day before the ex-date of the corporate event. For each active instrument of that underlying a new adjusted instrument version is created to become active on the ex-date as part of overnight processing. This new version may have an altered strike price and/or contract size compared to the old version.

In the same way, an old instrument version is inactivated, and the Clearing House will as part of the adjustment procedure move open interest from the old instrument versions into the corresponding new instruments.

Each instrument has a version number (or modifier) attribute as part of its definition in reference data that indicates if and how many times an instrument has been adjusted. Initially an instrument has version number 0 (zero). A new adjusted instrument get a version number increased by one compared to the corresponding old version as part of each subsequent adjustment.

Similarly, the new instrument versions get a one-character suffix appended to their instrument symbols. An “X” is added in case it is the first adjustment and “Y” and “Z” are used for subsequent second and third adjustments, respectively. Additional rounds of adjustments are assigned suffixes in alphabetic order starting from “Q”.

Any GTD or GTC orders in instruments that are subject to an adjustment are not carried over from the day before ex-date.

Adjusted strike prices on new instrument versions may following the adjustment no longer be aligned with the defined standard strike price range and steps for that underlying. Following an adjustment relating to an underlying, adjusted instruments on that underlying with non-standard strike prices and contract sizes will until their expiration co-exist with new instruments being created according to the standard definition.

2.4.1 Symbol Change

In relation to certain types of adjustments, the underlying symbol (and ID) of the affected instruments may change as follows.

- **Basket Adjustment:** In case company “A” distributes shares of company “B”, a new symbol “C” for an underlying basket consisting of both companies may be created and the new adjusted instrument versions will be associated with this new basket symbol. The spot price of the new underlying will be the combined price of “A” and “B”.
- **Stock Ticker Code Change:** In case of a stock symbol or company name change, a new underlying symbol may be created and new corresponding instrument versions will be created for this underlying.
- **Merger or Acquisition:** Depending on the conditions the symbol for instruments of one or both of the concerned underlyings may change as part of the resulting adjustment.

The above is not an exhaustive list of symbol changes but gives an overview of different types of available adjustments.

2.4.2 Expiration Date Change

In exceptional cases, the Clearing House may change the expiration dates on existing instruments. Such change for an instrument becomes active as part of overnight processing and adjusts the last trading date accordingly. Information on the new last trading date will be included as part of the concerned instruments' reference data on the ex-day.

Examples include when an underlying stock is delisted which may result in early expiration or significant technical disturbances that require expiration dates to be postponed.

3 Participants & Users

3.1 Participants

Members are defined in the Trading System as participants and each participant is assigned a unique MPID (Market Participant ID) code. The MPID is a mnemonic with a maximum of five characters used by both the Exchange and Clearing House to denote the same individual participant across their systems.

By default the Trading System treat different participants as individual and independent parties. Typically, one participant represents one member firm but a member may decide to separate its order and trade flows between two or more different MPIDs. In some cases the Exchange may also require members to separate and use additional MPIDs for certain type of trading activity, e.g. for market making or sponsored access purposes.

As all participants, including non-clearing members, are defined in the Clearing House's system, all trades that are novated for clearing identify the respective MPID as known to both Exchange and Clearing House, without the need to separately identify a corresponding clearing member code.

Instrument Access

The Exchange configures and controls members' market access in terms of allowed instruments at participant level. User and ports of the respective participant inherit the defined access without further limitation.

The Exchange typically configures access to instruments in terms of market segment lists with the possibility to in some cases limit access to particular products.

3.2 Users

Users are traders, applications or a generic type of automated trading activity that submit orders, quotes or trades for a participant through one or more connections (ports) to the Trading System.

Each user is assigned a six-character "Trader ID" code and each order, quote or trade report sent to the Trading System must carry the identifier of a pre-registered user associated with the concerned MPID.

A member may associate one Trader ID with two or more participants in the case where the member uses more than one MPID.

Two types of Trader IDs are used as follows:

- **Personal Trader IDs:** The Exchange creates and assigns these codes to each authorised and registered trader as set out in the Exchange Rules.
- **Generic Trader IDs:** The Exchange creates and assigns these codes on request from members to generic types of automated trading activity where a registered trader is not physically entering the orders or quotes. Examples of categories include algorithmic execution or trading, automated order routing, direct market access and sponsored access. Each generic Trader ID is in turn assigned a responsible person.

The Trading System validates that each order, quote and trade entry identifies a valid trader ID or otherwise rejects the transaction.

3.3 Ports

Ports refer to logical connections through which users interface with the Trading System.

There are three types of ports:

- **OUCH Port:** A port that allows users to send and receive order related messages via the OUCH protocol. Additionally, quote messaging is supported for market makers.
- **FIX Port:** A port that allows users to send and receive order and trade registration related messages via the FIX protocol.
- **FIX Drop Port:** A port that allows users to receive via the FIX interface; copies of order and trade related messages sent on OUCH and FIX ports.

The Exchange creates ports on request by members and each port is by default associated with one participant. A single port can be configured to accepts orders from two or more related participants in case one member uses multiple MPIDs.

Several users at one member may use the same port if they are associated with the same MPID.

4 Interfaces

4.1 Trading Interfaces

Trading is supported via the OUCH and FIX (Financial Information eXchange) protocols, respectively.

For detailed information on the different interfaces, please refer to the respective protocol specification available at the technical information web page.

The following table outlines how different features are supported across the two interfaces.

Functionality	OUCH	FIX
Order Handling	✓	✓
Quote Handling	✓	-
Quote & Cross Requests	✓	✓
Complex Instrument Request	✓	✓
Flexible Instrument Request	-	✓
Member Kill Switch Request	✓	✓
MM Protection Settings	✓	-
PRM Administration	✓	-
Self-Match Prevention	✓	✓
Off-Book Trade Handling	-	✓
Trade Cancels/Corrections	✓ (order book)	✓
Orders & Executions Drop	✓ (quote fills)	✓ (FIX and/or OUCH orders)
Off-Book Trade Drop	-	✓

Table 3: *Outline of Features per Trading Interface*

4.2 Market & Reference Data Feeds

The Trading System disseminates market and reference data via the ITCH feed.

Auxiliary data is available via the ITCH-like AMD feed.

Additionally, market and reference data from the Trading System is available via GCF (Genium Consolidated Feed).

For detailed information on the different interfaces, please refer to the respective protocol specification available at the technical information web page.

The following table outlines the different data available across the three interfaces.

Information	ITCH	AMD	GCF
Order & Quote Level Data	✓	-	✓ (index futures)
Price Level Aggregated Data	-	-	✓
Net Order Imbalance Info (NOII)	✓	-	✓
Quote & Cross Requests	✓	-	✓
Order Book Trades	✓ (executions)	-	✓ (trade details)
Off-Book Trades	✓	-	✓
Trade Cancels & Corrections	✓	-	✓
Trade Statistics	-	✓	✓
Settlement Prices & OI	-	✓	✓
Order Book Status	✓	-	✓
Market Conditions	✓	-	✓
Instrument Ref Data	✓	✓ (limited)	✓
Market Model Ref Data	-	-	✓

Table 4: *Outline of Features per Market Data Interface*

5 The Trading Day

A trading day for an instrument is comprised of several scheduled trading phases (or trading sessions).

Additionally, a trading day may include unscheduled phases in case trading in the instrument is halted/suspended and later resumed.

The current trading phase for an instrument controls what functionality is available to users, how orders are executed and what type of pre- and post-trade information is disseminated.

Information about the current trading phase is disseminated via market data feeds every time an instrument transitions to the next scheduled trading phase or in case trading is halted or suspended and subsequently resumed.

All times set out in this section are in Central European Time (CET).

5.1 Trading Hours

The tables in this section specifies relevant sequence and timings of scheduled trading phases and their applicability to instruments on normal and half trading days, respectively.

5.1.1 Swedish Segment

<table>
<tr><th>Normal Day</th><th>Half-Day</th><th>OMXS30, OMXESG Futures</th><th>OMXS30, OMXESG, S30MIN Fut Spreads</th><th>S30MIN Futures</th><th>Other Index Futures</th><th>Other Index Fut Spreads</th><th>OMXS30 Options</th><th>Single Stock</th></tr>
<tr><td colspan="2">08:00</td><td colspan="3">Pre Open</td><td colspan="4" rowspan="3">Pre Open</td></tr>
<tr><td colspan="2">08:30</td><td colspan="3">Pre-Trading</td></tr>
<tr><td colspan="2">08:55</td><td>Opening Auction</td><td>Pre Open</td><td>Opening Auction</td></tr>
<tr><td colspan="2">09:00</td><td colspan="7">Continuous Trading</td></tr>
<tr><td>17:25</td><td>12:55</td><td>Closing Auction</td><td colspan="2" rowspan="2">Post Close</td><td colspan="4" rowspan="3">Post Close</td></tr>
<tr><td>17:27:30 (+30)</td><td>12:57:30 (+30)</td><td>Close Uncross</td></tr>
<tr><td>17:30</td><td>13:00</td><td colspan="3">Post-Trading</td></tr>
<tr><td>18:00</td><td>13:30</td><td colspan="7">Closed</td></tr>
<tr><td colspan="2">19:30</td><td colspan="7">End of Day</td></tr>
</table>

Table 5: *Trading Hours on the Swedish Market Segment*

5.1.2 Danish Segment

Normal Day	OMXC25 Futures	OMXC25 Fut Spreads	OMXC25 Options	Single Stock
08:00	Pre Open	Pre Open		
08:55	Opening Auction			
09:00		Continuous Trading		
16:55:00	Closing Auction	Post Close		
16:56:30 (+30)	Close Uncross → Post Close			
18:00	Closed			
19:30	End of Day			

Table 6: *Trading Hours on the Danish Market Segment*

5.1.3 Norwegian Segment

Normal Day	Half Day	OMXO20 Futures	OMXO20 Fut Spreads	OMXO20 Options	Single Stock
08:00		Pre Open	Pre Open		
08:55		Opening Auction			
09:00			Continuous Trading		
16:20:00	**13:00:00**	Closing Auction	Post Close		
16:21:30 (+30)	**13:01:30 (+30)**	Close Uncross → Post Close			
18:00	**13:30**	Closed			
19:30		End of Day			

Table 7: *Trading Hours on the Norwegian Market Segment*

5.1.4 Finnish Segment

Normal Day		Finnish Stock
08:00		Pre Open
09:00		Continuous Trading
17:25	**12:55**	Post Close
18:00	**13:30**	Closed
19:30		End of Day

Table 8: *Trading Hours on the Finnish Market*

5.1.5 Trading Calendars

Each weekday that is not a half-day or a holiday as set out in the Exchange Rules, is a normal trading day.

The dates for holidays and half-days are defined by the Exchange per market segment. This means that it is possible that instruments under one or more market segments have a half trading day or are closed for trading while on the same day, trading takes place as normal for instrument under other different segments.

Instruments that have a holiday are disseminated as usual in reference data, but they are closed for trading throughout that day without switching state of the order book.

In case all market segments have a holiday, the Trading System is inaccessible similar to a weekend.

Information on dates for holidays and half-days can be found at the Nasdaq Nordic website.

5.1.6 Early Close on Expiration Day

For particular products, trading ends early on the expiration day for an instrument as follows.

Product	Trading Ends
OMXS30, S30MIN, OMXESG Index Futures	End of Closing Auction
OMXS30 Weekly Index Options	CET 16:00

Table 9: *Early Closing Times on The Expiration Day*

All other instruments have normal trading hours on their expiration day.

5.2 Trading Phases

This section describes the different methods of trading and the characteristics of scheduled trading phases and their transitions.

The Trading System prioritises and matches single orders and market maker quotes in the same way. Orders and quotes are therefore throughout this section together referred to as orders unless otherwise noted.

5.2.1 Regular Trading Hours

Regular trading hours consists of Continuous Trading and for particular index futures products, additionally Opening and Closing Auctions.

5.2.1.1 Continuous Trading

At 09:00 to start the trading phase, the Trading System disseminates for every instrument an order book trading action message via ITCH to indicate the start of Continuous Trading.

During this trading phase, matching buy and sell orders are continuously executed into trades based on the best available price in the order book.

At the start of the phase, implied pricing is enabled and orders that remain active in the order book after the end of the prior trading phase (Opening Auction or Pre Open depending on the product) are disseminated via ITCH and enter continuous matching while retaining their time priority.

For instruments where no trade took place in the Opening Auction, the first eligible trade executed in this phase will determine the official opening price of the trading day.

Stop Orders carried over from the previous day or entered ahead of this phase are now enabled for triggering to become active orders in this phase, with the opening price being the first possible triggering event.

On Close orders entered during the morning remain inactive, pending the start of the Closing Auction.

Throughout Continuous Trading, the following applies:

- Full order management is supported: Users can enter new, or change or cancel open orders. The types of orders that can be entered are specified Table 10 in the table below.
- An incoming market order, or a buy (sell) order with a limit price at or higher (lower) than the best available offer (bid), is immediately matched with one or more orders resting in the order book until either the incoming order quantity is exhausted, or until there are no matching orders left in the order book.
- Resting orders are executed in price priority order so that all volume at the best price in the order book is traded before orders at the next best price. If there are two or more resting orders at the same price, then depending on the applicable order matching method, orders are either executed in time priority order or on a pro-rata basis as described in section 5.2.1.1.1. Information on which matching method is applicable to a product can be found in Annexe D.
- The limit price of the passive order resting in the order book determines the price on each trade that is executed.
- Pre-trade transparency is market by order: the full depth of the order book is disseminated via ITCH with details on price and displayed quantity for each active order.

- Details of trades executed in the order book or submitted via the TRF are disseminated via ITCH, and trade statistics are updated with every execution.
- User-defined strategies and flexible instruments can be created.
- Quote and cross requests are accepted.
- Off-book trade reports are accepted.

An overview of the characteristics of Continuous Trading can be found in Table 10 below.

Functionality		Continuous Trading
Automatic Matching		Continuous
Order Management		Enter, change, and cancel
Order Entries	**Limit:**	Day, IOC, FOK, GTC or GTD, On Close
	Market[2]**:**	Day, IOC, or FOK
	Stop[3]**:**	Day, IOC, FOK, GTC or GTD
Orders Executed	**Limit:**	Day, IOC, FOK, GTC or GTD
	Market:	Day, IOC, FOK, GTC or GTD
	Stop:	Day, IOC, FOK, GTC or GTD
Implied Pricing		Yes
Off-Book Trade Entry		Yes
RFQs		Yes
Instrument Creation		Yes
State Indicator		Order Book Trading Action: Continuous Trading (T)
Transition		For relevant index futures, orders that remain active after the opening uncross are disseminated via ITCH.
Pre-Trade Info		Market by order
Post-Trade Info	**Order Book:**	New trades, trade cancels and price adjustments
	Off-Book:	New trades, trade cancels and trade corrections

Table 10: *Overview of Functionality in Continuous Trading*

[2] Market orders are not available for combinations

[3] Stop orders are only available for particular index futures

5.2.1.1.1 Order Matching Methods

Price/Time Priority in Index Futures

For index futures, orders at the same price in the order book are executed in the following order:

1. Displayed volumes from outright orders are executed in time priority order, oldest timestamp first.
2. After all displayed volumes from outright orders have been executed in full, implied orders are executed in time priority order based on the timestamp of the respective combination orders.
3. After all displayed volume (outright and implied) has been executed in full, hidden volumes from reserve orders are executed in time priority order based on the timestamp of the hidden part of each order.
4. After hidden volumes from reserve orders have been executed in full, implied volumes derived from hidden volume of reserve orders are executed based on the timestamp of the respective combination orders.

Price/Time Priority in Options and Single-Stock Futures/Forwards

For options using price/time priority and for all single-stock futures and forwards, orders at the same price in the order book are executed in the following order:

1. Displayed volumes from outright orders are executed in time priority order, oldest timestamp first.
2. After all displayed volumes from outright orders have been executed in full, hidden volumes from reserve orders are executed in time priority order based on the timestamp of the hidden part of each order.
3. At the best price after all volumes from outright orders (displayed and hidden) have been executed in full, an implied order generated at that price may be executed.

Price/Pro-Rata Allocation in Options

For options using pro-rata matching, orders at the same price in the order book are allocated trade volume on a pro-rata basis as follows.

1. In a first step, outright orders are allocated trade volume based on their displayed volume in proportion to the total displayed outright volume at the given price level. Allocations are determined for orders one by one, in descending order of their displayed quantity. If two or more orders display the same quantity, then allocations to those orders are determined in time priority order (oldest timestamp first). Each order's allocation is determined as follows:
   - A quotient is calculated by dividing the order's displayed quantity by the total displayed quantity of orders that remain to be allocated in this step.
   - The resulting allocation is obtained by multiplying the quotient by the remaining aggressive quantity to execute. The result is rounded up if not a whole number.
2. In case an incoming aggressive order is left unexecuted after all displayed volumes from outright orders have been executed as part of the first step, then in a second step, the aggressive order is executed against hidden volume from existing reserve orders. The reserve orders are allocated trade volumes according to the same procedure as in the first step, based on each reserve order's hidden volume in proportion to the total hidden volume at the given price.
3. At the best price in case an incoming aggressive order is left unexecuted after all volumes from outright orders (displayed and hidden) have been executed as part of the first and second steps, then in a third step an implied order generated at that price may be executed.

5.2.1.1.2 Order Matching Examples

The following example illustrates the trade priority at the same price for explicit and implied prices versus hidden volume in index futures.

"*i*" indicates implied volume.

Reserve volume within brackets is not displayed.

The following buy orders are resting on the book for a given index future.

Ord ID	Qty	Bid
T3	5	2310.00
T4	10 (90)	2310.00
T5	5 (20)	2310.00
T2	i10	2310.00
T1	20	2309.75

Action: New order to sell 50 lots at 2309.75 arrives.

Outcome:

Passive buy orders are executed against the aggressive sell order as follows.

Ord ID	Price	Trade Qty	Leaves Qty
T3	2310.00	5	0
T4	2310.00	10	0 (90)
T5	2310.00	5	0 (20)
T2	2310.00	10	0
T4	2310.00	20	0 (70)

New peaks for reserve orders (same as initial) are generated at the end of the matching event.

Leaving the bid side of the book after the matching event as follows.

Ord ID	Qty	Bid
T4	10 (60)	2310.00
T5	5 (15)	2310.00
T1	20	2309.75

Example 3: *Price/Time Priority in Index Futures*

The following example illustrates how resting outright orders at the same price for an option with pro-rata matching, are allocated volume in descending order of their display quantity.

"*i*" indicates implied volume.

The following sell orders are resting on the book for a given index option with pro-rata matching.

Ask	Qty	Ord ID
10.00	10	T3
10.00	40	T4
10.00	15	T5
10.00	i10	T2
10.25	50	T1

Action: New order to buy 15 lots at 10.00 arrives.

Outcome:

Passive sell orders are executed against the aggressive buy order as follows.

Ord ID	Price	Order Qty	Accumulated Qty	Trade Qty	Calculation	Leaves Qty
T4	10.00	40	65	10	40/65 x 15 = 9.23… ≈ 10 (round up)	30
T5	10.00	15	25	3	15/25 x (15-10) = 3	12
T3	10.00	10	10	2	10/10 x (15-13)	8

Note that at the same price, implied volume is executed first after all outright volume has been exhausted, why T2 is excluded from the allocation.

Example 4: *Pro-Rata Matching in Options*

The following example illustrates for pro-rata matching in options, how the timestamp on orders with the same open quantity determines the order in which they are prorated trade volume.

"*i*" indicates implied volume.

The following sell orders are resting on the book for a given index option with pro-rata matching.

Ask	Qty	Ord ID
10.00	10	T3
10.00	20	T4
10.00	10	T5
10.00	i10	T2
10.25	50	T1

Action: New order to buy 15 lots at 10.00 arrives.

Outcome:

Passive sell orders are executed against the aggressive buy order as follows.

Ord ID	Price	Order Qty	Accumulated Qty	Trade Qty	Calculation	Leaves Qty
T4	10.00	20	40	8	20/40 x 15 = 7.50 ≈ 8	12
T3	10.00	10	20	4	10/20 x (15-8) = 3.50 ≈ 4	6
T5	10.00	10	10	3	10/10 x (15-12)	7

Example 5: *Time Element in Pro-Rata Matching*

5.2.1.2 Opening & Closing Auctions

During the Opening and Closing Auction phases, a two-sided auction (or cross) is organised which for a given instrument ends with an uncrossing procedure where the Trading System matches orders into a trade based on the current equilibrium price in the order book, as further described in section 5.2.1.2.3.

As set out in section 5.1, auctions are only available for particular index futures products for which the relevant auction period runs at the same time for all expiration months.

When an auction starts, the Trading System automatically cancels orders that fall outside applicable price limits as detailed in 0.

Throughout Opening and Closing Auctions the following applies:

- Full order management is supported: Users can enter new, or change or cancel open orders.
- Incoming market and limit orders that are eligible to participate in the auction are stored on each side of the order book in descending buy price or ascending sell price order, respectively. Market orders ranks ahead of limit orders. Orders at the same price are queued according to their timestamp (oldest first).
- Eligible bids and offers accumulate and can cross (best bid at or above best offer) without executing and remain in the order book until they are cancelled or until they are executed in the uncross.
- Implied pricing is disabled.
- Request to create user-defined strategies and flexible instruments are not accepted.
- Quote and cross requests are not accepted.
- Off-book trade reporting is limited as detailed in section 10.8.
- Individual orders are not disseminated, pre-trade information is available in real time as Net Order Imbalance Information (NOII) as further described in section5.2.1.2.5.

5.2.1.2.1 Opening Auction

The Opening Auction starts at 08:55 and ends with the opening uncross being initiated at 09:00 at which time the order book switch state to Continuous Trading.

When a futures instrument enters the auction period, the Trading System disseminates an order book trading action message via ITCH indicating the start of the Opening Auction.

Related futures spreads and index options on the same underlying with their related options combinations, either switch back to or remain in Pre Open for the duration of the Opening Auction.

For every futures instrument that that switch to the auction state, the Trading System sends an order book flush message via ITCH to indicate that market by order transparency is disabled. Orders that remain active in the order book after the auction has completed will be disseminated via ITCH when Continuous Trading starts.

When the order book for a futures instrument is uncrossed, the Trading System disseminates a cross trade message via ITCH indicating that the Opening Auction has been completed.

The following orders are eligible to participate in the Opening Auction:

- Active limit orders on the order book that were entered before the auction period retain their time priority:
  - For OMXS30, OMXESG and S30MIN index futures, this means Day, GTC and GTD orders that remain active in the order book at the end of Pre-Trading.
  - For other futures products having an Opening Auction, this means GTC and GTD orders carried over from the previous day.
- On Open orders (MOO and LOO) entered ahead of the auction are activated at the start of the phase and join the queue of orders at the same price based on the time of activation. On Open orders entered before the auction are activated in sequence of their order entry time. The time priority in relation to other orders arriving at the same time as On Open Orders are being activated is non-deterministic.
- New market orders with TIF IOC or On Open.
- New limit orders with TIF day, IOC, On Open, GTC or GTD. Reserve quantity is accepted.

The following orders entered before or during the auction phase remain inactive and do not participate in the opening uncross:

- On Close Orders (MOC and LOC) remain inactive until the start of the Closing Auction.
- Stop Orders (regular and stop-limit) remain inactive for possible triggering into the Continuous Trading phase.

An overview of the characteristics of the Opening Auction can be found in Table 11 below.

ⓘ ***Note:*** *Opening Auctions are not supported for OMXSB and OMXDIV.*

Functionality		Opening Auction	
		Auction (Cross) Period	*Uncross*
Automatic Matching		No	Uncross algorithm
Order Management		Enter, change, or cancel	N/A
Order Entries	**Limit:**	Day, IOC, GTC, GTD, On Open, or On Close	N/A
	Market[4]**:**	IOC, On Open, or On Close	N/A
	Stop[5]**:**	Day, IOC, FOK, GTC or GTD	N/A
Orders Executed	**Limit:**	N/A	Day, IOC, GTC, GTD or On Open
	Market:	N/A	IOC, or On Open
	Stop:	N/A	No
Implied Pricing		No	
Off-Book Trade Entry		Limited	
RFQs		No	
Instrument Creation		No	
State Indicator		Order Book Trading Action: Opening Auction (O)	Cross Trade: Opening Auction (O)
Transition		Order Book Flush message indicates that market by order transparency is disabled. Orders outside price limits are automatically cancelled.	N/A
Pre-Trade Info		NOII	N/A
Post-Trade Info	**Order Book:**	N/A	Auction trade details
	Off-Book:	New trades, trade cancels and trade corrections	N/A

Table 11: *Overview of Functionality in Opening Auction*

[4] Market orders are not available for combinations

[5] Stop orders are only available for particular index futures

5.2.1.2.2 Closing Auction

The Closing Auction follows the Continuous Trading phase.

For OMXS30 and OMXS30ESG index futures, the Closing Auction starts at 17:25 (12:55 on half-days). The uncross takes place randomly during a window of 30 seconds starting 17:27:30 so that the auction period lasts between 2.5 and 3 minutes.

For OMXC25 index futures, the Closing Auction starts at 16:55 and the uncross takes place randomly during a window of 30 seconds starting 16:56:30.

For OMXO20 index futures, the Closing Auction starts at 16:20 (13:00 on half-days) and the uncross takes place randomly during a window of 30 seconds starting 16:21:30.

This means that for OMXC25 and OMXO20 index futures, the auction period lasts between 1.5 and 2 minutes.

When a futures instrument enters the auction period, the Trading System disseminates an order book trading action message via ITCH indicating the start of the Closing Auction.

Related futures spreads and index options on the same underlying with their related options combinations, switch state to Post Close at the time the Closing Auction starts.

For every futures instrument that switch to the auction state, the Trading System sends an order book flush message via ITCH to indicate that market by order transparency is disabled. For index futures that have Post Trading, GTD/GTC orders that remain active will be disseminated via ITCH at the start of Post-Trading.

When the order book for a futures instrument is uncrossed, the Trading System disseminates a cross trade message via ITCH indicating that the Closing Auction has been completed.

Eligible orders participate in the Closing Auction accordingly:

- Limit orders that remain active in the order book at the end of Continuous Trading retain their time priority.
- On Close orders (MOO and LOO) entered ahead of the auction activate at the start of the phase and join the queue of orders at the same price level based on the time of activation. On Close Orders entered before the auction, are activated in sequence of their original entry time. The time priority in relation to other orders arriving at the same time as On Close Orders are being activated, is non-deterministic.
- New market orders with TIF IOC or On Close.
- New limit orders with TIF Day, IOC, On Close, GTC or GTD. Reserve quantity is accepted.

Un-triggered stop orders remain inactive and do not participate in the closing uncross.[6]

ⓘ ***Note:*** *Closing Auctions are not supported for S30MIN, OMXSB and OMXDIV.*

[6] Day, IOC and FOK stop orders expire after the closing uncross while GTC/GTD will carry over to the next date.

Functionality		Closing Auction	
		Auction (Cross) Period	*Uncross*
Automatic Matching		No	Uncross algorithm
Order Management		Enter, change, or cancel	N/A
Order Entries	**Limit:**	Day, IOC, GTC, GTD or On Close	N/A
	Market:	IOC, or On Close	N/A
	Stop:	No	N/A
Orders Executed	**Limit:**	N/A	Day, IOC, GTC, GTD or On Close
	Market:	N/A	IOC, or On Close
	Stop:	N/A	No
Implied Pricing		No	
Off-Book Trade Entry		Limited	
RFQs		No	
Instrument Creation		No	
State Indicator		Order Book Trading Action: Closing Auction (C)	Cross Trade: Closing Auction (C)
Transition		Order Book Flush message indicate that market by order transparency is disabled. Orders outside price limits are automatically cancelled.	Expiring orders are automatically cancelled.
Pre-Trade Info		NOII	No
Post-Trade Info	**Order Book:**	N/A	Auction trade details
	Off-Book:	New trades, trade cancels and trade corrections	N/A

Table 12: *Overview of Functionality in Closing Auction*

Order Management after the Closing Uncross

For OMXS30 and OMXESG futures, during the short intermediate period that follows the closing uncross before Post-Trading starts, the following applies:

- Order management is limited: Users can cancel orders, but not enter new or change existing.
- Expired orders in relevant instruments are automatically deleted from the order book and notified to users.
- Individual order updates are not disseminated by the Trading System via ITCH.

5.2.1.2.3 Uncrossing Procedure

At the end of an auction phase the Trading System carries out the uncrossing procedure to match and execute eligible orders based on the current equilibrium price for an instrument as follows.

- The equilibrium price is the one single execution price for all orders matched in the uncross.
- The traded price will not be lower (higher) than the best bid (offer) price of orders left from the auction.
- All eligible orders are matched and executed together in one step.
- Limit orders are executed at their limit price or better.
- After the order book has been uncrossed there will be no orders left following the auction that can be matched with each other.

It is not possible to execute an auction trade in case there are no crossing orders, or in case there are only market orders on both sides of the order book. In such case, the auction phase will simply end without a trade and for that instrument; the first or last eligible trade in Continuous Trading will then set the opening or closing price, respectively.

Market orders and crossing limit orders are executed in price-time priority order meaning:

1. In case of no imbalance volume at the equilibrium price, then all orders priced at or better than the equilibrium price are executed in full.
2. In case of imbalance volume at the equilibrium price, then:
   a. All orders priced better than the equilibrium price are executed in full.
   b. Orders priced at the equilibrium price are executed in time priority order. After all display volumes have been executed in full, reserve volume are executed in time priority order.

Market orders are ranked and executed ahead of limit orders and amongst market orders in case of imbalance, in time priority order.

When the order book is uncrossed, the total volume and number of executions are published to the entire market. Additionally, details of each individual execution are published, and trade statistics are updated.

After the uncross, any volumes that are left unexecuted from IOC or On Open/On Close orders that participated in the relevant auction are automatically cancelled.

5.2.1.2.4 Equilibrium Price Calculation

At the start of every auction phase, the Trading System automatically cancels any outlier limit orders resting outside applicable price limits for the concerned instrument (see section 0). The price limits are static throughout the auction period and effectively set the outer bounds for limit prices considered in the equilibrium price calculation.

The Trading System calculates the EP for an instrument as follows:

1. The EP is the price at which the maximum volume from matching orders can be executed in the uncross, including any reserve volume.
2. If there are two or more prices where the maximum volume can be executed, the EP is the price with the minimum imbalance volume. The imbalance volume is the absolute difference between the aggregate buy and sell volumes from eligible orders priced at or better than the given price level.
3. If there are two or more prices where the maximum volume can be executed with the same minimum imbalance volume, then the Trading System considers the market pressure (the side of any imbalance volume) at each price candidate to determine the EP as follows:
   a. If all price candidates have buying pressure, then the highest price is the EP.
   b. If all price candidates have selling pressure, then the lowest price is the EP.
4. If there is no market pressure (i.e. no imbalance) at each price candidate, or if both buying and selling market pressures exist, then a reference prices is used to determine the EP. The reference price used in this step is today's last execution price or if no trade has yet taken place, then yesterday's settlement price.
   a. If there is no market pressure at each of the remaining price candidates, then the price candidate closest to the reference price is the EP.
   b. If there is a mix of buying and selling pressure amongst the remaining price candidates, then the highest bid price with buy pressure or the lowest ask price with sell pressure is the EP, whichever is the closest to the reference price.

5.2.1.2.5 Net Order Imbalance Indicator (NOII)

Throughout auction phases, Net Order Imbalance Indicator (NOII) information is disseminated by the Trading System via ITCH. Individual orders are not published.

The NOII information is sent at the start of an auction phase and with every order change that updates any of the information, which include:

- Equilibrium price
- Indicative trade volume
- Imbalance volume
- Imbalance direction
- Best bid limit price
- Best ask limit price
- Volume at best bid limit price
- Volume at best ask limit price

Best bid and ask limit prices and the accumulated volumes at the respective price in the order book are published as long as the order book has not been crossed. Market orders are never represented in this information, e.g. in a scenario with no limit orders on the side(s).

The total volume of each reserve order participates in the auction and reserve volumes at the best price levels or at the equilibrium price are included in the relevant volume measures.

5.2.2 Extended Trading Hours

In particular index futures and their related futures spreads, trading take place before and after regular trading hours in the Pre- and Post-Trading phases, respectively.

Trading in related option instruments on the same underlying is not available during extended trading hours. These related instruments remain in Pre Open or Post Close, respectively.

During extended trading hours, the following applies for relevant instruments:

- Matching buy and sell orders are continuously executed into trades according to the same procedure as in the Continuous Trading phase.
- Full order management is supported: Users can enter new, or change or cancel existing orders. The types of orders that can be entered are specified in Table 13 below.
- Requests to create user-defined combinations and flexible instruments are not accepted.
- Quote and cross requests are not accepted.
- Off-book trade reporting is limited as detailed in section 10.
- Pre-trade transparency is market by order: the full depth of the order book is disseminated with details on price and displayed quantity for each active order.
- Details of trades executed in the order book or submitted via the TRF are disseminated via ITCH, and trade statistics are updated with every execution.

Further details on specific features for each state can be found in the following sub-sections.

ⓘ ***Note:*** *Extended trading hours are currently available for OMXS30, OMXESG and S30MIN index futures and their related futures spreads.*

Functionality		Pre-Trading	Post-Trading
Automatic Matching		Continuous	
Order Management		Enter, change, and cancel	
Order Entries	**Limit:**	Day, IOC, FOK, GTC, GTD, On Open, or On Close	Day, IOC, FOK, GTC, or GTD
	Market[7]**:**	On Open, or On Close	No
	Stop[8]**:**	Day, IOC, FOK, GTC or GTD	No
Orders Executed	**Limit:**	Day, IOC, FOK, GTC or GTD	
	Market:	No	
	Stop:	No	
Implied Pricing		Yes	
Off-Book Trade Entry		Yes	
RFQs		No	
Instrument Creation		No	
State Indicator		Order Book Trading Action: Pre-Trading (M)	Order Book Trading Action: Post-Trading (E)
Transition		N/A	GTD/GTC orders that remain active are disseminated via ITCH.
Pre-Trade Info		Market by order	
Post-Trade Info	**Order Book:**	New trades, trade cancels and price adjustments	
	Off-Book:	New trades, trade cancels and trade corrections	

Table 13: *Overview of Functionality During Extended Trading Hours*

[7] Market orders are not available for combinations

[8] Stop orders are only available for particular index futures

5.2.2.1 Pre-Trading

At 08:30 to start the trading phase, the Trading System disseminates for relevant index futures and their related futures spreads an order book trading action message via ITCH to indicate the start of Pre-Trading.

At the start of the phase, implied pricing is enabled and GTD/GTC orders carried over from the previous day enter continuous matching while retaining their time priority.

Throughout this phase, the following applies for relevant instruments:

- Stop orders carried over from the previous day or entered during this phase remain inactive and are not able to trigger until Continuous Trading. The opening trade during regular trading hours will be the first possible triggering event.
- At the end of the trading phase, high, low and last trade prices in trade statistics are reset before the start of the Opening Auction.

5.2.2.2 Post-Trading

At 17:30 to start the trading phase, the Trading System disseminates for relevant index futures and their related futures spreads an order book trading action message via ITCH to indicate the start of Post-Trading.

At the start of the phase, implied pricing is enabled and GTD/GTC orders that remain active are disseminated via ITCH and enter continuous matching while retaining their time priority.

Throughout this phase, the following applies:

- Un-triggered stop orders with TIF GTC/GTD (regular and stop-limit) entered ahead of Post-Trading stay inactive throughout this phase. The next possible triggering event will be the opening trade of the main trading session on the next day.
- Prices in this phase do not contribute to official end of day statistics.

5.2.3 Other Scheduled Trading Phases

Functionality		Pre Open	Post Close	Closed
Automatic Matching		No		
Order Management		Cancel		No
Order Entries	**Limit:**	No		
	Market:	No		
	Stop:	No		
Orders Executed	**Limit:**	N/A		
	Market:	N/A		
	Stop:	N/A		
Implied Pricing		No		
Off-Book Trade Entry		No	Off hours reporting	
RFQs		No		
Instrument Creation		No		
State Indicator		Order Book Trading Action: Pre Open (P)	Order Book Trading Action: Post Close (L)	Order Book Trading Action: Closed (X)
Transition		N/A	Order Book Flush message indicates that market by order transparency is disabled. Expiring orders are automatically cancelled.	N/A
Pre-Trade Info		Individual order deletions	No	
Post-Trade Info	**Order Book:**	No		
	Off-Book:	New trades, trade cancels and trade corrections		

Table 14: *Overview of Functionality in Scheduled No-matching States*

5.2.3.1 Pre Open

Pre Open is a no-matching state that allows users to cancel open orders ahead of a trading phase with continuous matching. During this period is it not possible to enter new, or change open orders.

At 08:00, the Trading System disseminates for every instrument an order book trading action message via ITCH to indicate the start of Pre-Open.

Similarly, at 08:55 when particular index futures enter the Opening Auction, the Trading System disseminates for related futures spreads an order book trading action message via ITCH to indicate that the state has switched back to Pre Open.

Individual order deletions are disseminated via ITCH.

Off hours trade reporting is allowed as detailed in section 10, and details of such trades are disseminated via ITCH.

Instrument creation and quote/cross requests are not accepted.

5.2.3.2 Post Close

Post Close is a no-matching state that instruments either enter once regular trading hours have ended or pending the start of Post-Trading in case a Closing Auction is not used, as follows.

- Post Close is not used for OMXS30 and OMXESG futures that have a Closing Auction which is followed by Post-Trading.
- S30MIN futures and OMXS30, OMXESG and S30MIN futures spreads that do not have a Closing Auction; enter Post Close at 17:25 (12:55 on half-days) pending the start of Post-Trading.
- OMXO20 and OMXC25 futures enter Post Close after the Closing Auction has uncrossed.
- Other instruments enter Post Close once Continuous Trading has ended.

The state allows users to cancel orders that remain active after regular trading hours, ahead of either Post Trading or the next trading day. During this period is it not possible to enter new, or change open orders.

When an instrument switch to this state, the Trading System disseminates an order book trading action message via ITCH to indicate the start of Post Close.

For underlyings that do not have a future with a Closing Auction, expired orders are automatically cancelled in this phase and notified to users.

For every instrument that that switch state to Post Close, the Trading System sends an order book flush message via ITCH to indicate that market by order transparency is disabled. Individual order deletions are not disseminated. For index futures spreads that have Post Trading, GTD/GTC orders that remain active will be disseminated via ITCH at the start of Post-Trading.

Off hours trade reporting is allowed as detailed in section 10, and details of such trades are disseminated via ITCH.

Instrument creation and quote/cross requests are not accepted.

5.2.3.3 Closed

At 18:00, the Trading System disseminates via ITCH an order book trading action message for every instrument that switch state to “Closed”.

At this time all order management functionalities are disabled for users.

Off hours trade reporting is allowed until end of day as detailed in section 10, and details of such trades may be disseminated via ITCH.

5.3 Trading Halts & Resumptions

This section describes the characteristics of relevant trading halts and suspensions, and how trading is resumed following such interruptions.

5.3.1 Circuit Breakers

Circuit breakers are mechanisms for automatically halting trading in case there is a sudden significant price movement. This includes mechanisms for temporarily interrupting continuous matching and for extending a scheduled Opening or Closing Auction.

The Exchange defines the conditions for triggering of a circuit breaker per underlying and in case such condition is detected, the circuit breaker is applied so that trading is halted for all instruments including combinations associated with the concerned underlying.

Information on the Exchange's different circuit breakers mechanisms and their triggering conditions can be found in section 13.2.

When a circuit breaker is triggered for a given underlying, the resulting order book state for different instruments depends on their underling and instrument type:

- **Index Underlyings:**
  - In continuous matching if a circuit breaker is triggered, then all future instruments on that underlying switch state to Volatility Auction. Related futures spreads and option instruments, and if applicable related mini index futures, switch state to Volatility Stop.
  - During the Opening or Closing auction if a circuit breaker is triggered, then the auction state is extended for all future instruments on that underlying.
- **Individual Equity Underlyings:** If a circuit breaker is triggered, then all related instruments switch state to Volatility Stop.

The characteristics of each circuit breaker state including its duration is described in detail in the following sub-sections.

5.3.1.1 Volatility Auction

The order book can change state to Volatility Auction during Continuous Trading and extended trading hours.

During the Volatility Auction period, a two-sided auction is organised with an uncrossing procedure carried out at the end like the Opening Auction.

When trading is interrupted in a futures instrument due to a circuit breaker, the Trading System disseminates via ITCH an order book trading action message indicating that the order book has switched state to Volatility Auction.

For every futures instrument that that changes state to auction, the Trading System sends an order book flush message via ITCH to indicate that market by order transparency is disabled. Orders that remain active in the order book after the auction has completed will be disseminated via ITCH when continuous matching resumes.

The duration of a volatility auction is between 175 and 180 seconds. The uncross takes place randomly during a window of 5 seconds, at which time the Trading System disseminates a cross trade message via ITCH indicating that the Volatility Auction has been completed. When the auction has uncrossed the relevant continuous matching state resumes and the Trading System disseminates for every instrument

that switch state an order book trading action message indicting that the current trading phase has been resumed.

Volatility auctions are only applicable to index futures and the auction uncross will be initiated at the same time for all expiries.

For the duration of the futures auction, trading stops in related futures spreads and index option instruments and if applicable in related mini futures. Please see the next section 5.3.1.2 for more details.

Throughout a Volatility Auction, the following applies:

- Order management is supported meaning users can enter new, and change or cancel existing orders.
- Incoming market and limit orders that are eligible to participate in the auction are stored on each side of the order book in descending buy price or ascending sell price order, respectively. Market orders ranks ahead of limit orders. Orders at the same price level are queued according to their time of entry (older order before younger).
- Eligible bids and offers accumulate and can cross (best bid at or above best offer) without matching and remain in the order book until they are cancelled or until they are executed as part of the uncrossing procedure.
- Implied pricing is disabled.
- Request to create user-defined strategies and flexible instruments are not accepted.
- Quote and cross requests are not accepted.
- Off-book trade reporting is restricted as detailed in section 10.8.
- Individual orders are not disseminated on market data feeds, pre-trade information is available in real time as Net Order Imbalance Information (NOII) as further described in section 5.2.1.2.5.

Eligible futures orders participate in the volatility auction accordingly:

- Open orders entered before the auction retain their time priority, this includes limit orders with TIF day, GTC or GTD.
- New market orders are eligible for participation in the auction if they have TIF IOC.
- New limit orders are eligible for participation in the auction if they have TIF day, IOC, GTC or GTD. Reserve quantity is accepted.

Certain orders entered before or during the auction period remain inactive and do not participate in the uncross:

- If the Volatility Auction is triggered during Pre-Trading, then On Open and On Close orders (MOO/LOO and MOC/LOC) stay inactive until the start of the Opening Auction and Closing Auctions, respectively.
- If the Volatility Auction is triggered during Continuous Trading, then On Close orders (MOC and LOC) stay inactive until the start of the Closing Auction.
- Stop orders (regular and stop-limit) stay inactive for possible triggering into the Continuous Trading phase.

Functionality		Volatility Auction	
		Auction (Cross) Period	*Uncross*
Automatic Matching		No	Uncross algorithm
Order Management		Enter, change, or cancel	N/A
Order Entries	**Limit:**	Day, IOC, GTC, GTD, or On Open/On Close if before relevant auction	N/A
	Market:	IOC, On Open, or On Open/On Close if before relevant auction	N/A
	Stop[9]**:**	Day, IOC, FOK, GTC or GTD	N/A
Orders Executed	**Limit:**	N/A	Day, IOC, GTC, or GTD
	Market:	N/A	IOC
	Stop:	N/A	No
Implied Pricing		No	
Off-Book Trade Entry		Limited	
RFQs		No	
Instrument Creation		No	
State Indicator		Order Book Trading Action: Volatility Auction (V)	Cross Trade: Volatility Auction (V)
Pre-Trade Info		NOII	N/A
Post-Trade Info	**Order Book:**	N/A	Auction trade details
	Off-Book:	New trades, trade cancels and trade corrections	N/A

Table 15: *Overview of Functionality in Volatility Auction*

[9] Stop orders are only available for particular index futures

5.3.1.2 Volatility Stop

When trading is interrupted due to a circuit breaker in instruments other than individual index futures, the Trading System disseminates an order book trading action message via ITCH indicating that the order book has switched state to Volatility Stop.

When instruments enter this state, market maker quotes are automatically cancelled.

This trading halt state is similar to the Pre Open phase, and for its duration the following applies:

- Order management is limited: Users can cancel existing orders but not enter new or change existing.
- Requests to create user-defined combinations or flexible instruments are not accepted.
- Quote and cross requests are not accepted.
- Order deletions are disseminated via ITCH.
- Off-book trade reporting is limited as described in section 10 and trade details are published.

Functionality		Volatility Stop
Automatic Matching		No
Order Management		Cancel
Order Entries	**Limit:**	N/A
	Market:	N/A
	Stop:	N/A
Orders Executed	**Limit:**	N/A
	Market:	N/A
	Stop:	N/A
Implied Pricing		No
Off-Book Trade Entry		Limited
RFQs		No
Instrument Creation		No
State Indicator		Order Book Trading Action: Volatility Stop (S)
Transition		Automatic quote cancellation
Pre-Trade Info		Individual order deletions
Post-Trade Info	**Order Book:**	N/A
	Off-Book:	New trades, trade cancels and trade corrections

Table 16: *Overview of Functionality During Volatility Stop*

5.3.1.3 No-Uncross Period

The last 240 seconds of a continuous matching phase is a no-uncross period, meaning special handling for circuit breakers apply as follows.

For Continuous Trading and Pre-Trading, if a circuit breaker is triggered within this time window, then the concerned futures instruments will change state to Volatility Auction and remain in this state until the next scheduled auction phase. At the time of the next auction, the futures will shift from Volatility to Closing or Opening Auction, respectively, without uncrossing in the transition.

If a circuit breaker is triggered in the no-uncross period of Continuous Trading, related futures spreads and option instruments will change state from Volatility Stop to Post Close at the time the individual futures switch to Closing Auction.

Notwithstanding section 5.3.1.1 above, if a circuit breaker is triggered in the no-uncross period of Post-Trading, or in the no-uncross period of Continuous Trading when the next phase is not an auction; then the deviating order will be rejected (as opposed to accepted) and the concerned futures with their related futures spreads will change state to, and remain in Volatility Stop (as opposed to Volatility Auction) until Closed.

5.3.1.4 Auction Extensions

In case a circuit breaker is triggered for an underling index during the Opening or Closing Auction, then the relevant auction period is extended and the uncross delayed. For relevant futures instruments the Trading System disseminates an order book trading action message via ITCH indicating that the Opening or Closing Auction has been extended.

An Opening Auction extension lasts for 60 seconds delaying the opening uncross to 09:01.

A Closing Auction extension lasts between 55 and 60 seconds after which the closing uncross takes place randomly during a window of 5 seconds.

Active orders remain in the order book and for the duration of an extension full order management is supported in the same way as during normal auction phases. When the extension ends the uncross takes place according to normal auction procedures.

In the case of an Opening Auction extension, the scheduled opening of related futures spreads and options is delayed accordingly and if applicable, the auction is extended for related mini index futures.

5.3.2 Suspension of Trading due to Extraordinary Reasons

The Exchange may suspend trading due to extraordinary reasons such as technical issues. When trading in an instrument is suspended due to extraordinary reasons, the Trading System disseminates an order book trading action message via ITCH indicating that the order book has switched state to Technical Halt.

All market maker quotes in suspended instruments are automatically cancelled.

For the duration of the trading suspension, users cannot enter new or change open orders in relevant instruments.

Orders other than quotes placed on the order book before the trading suspension normally remain open and can be cancelled by users throughout the halt phase. In case the Exchange decides to mass-cancel orders, or prevent user-initiated cancellations, members will be informed via an Exchange Notice.

Instrument creation, quote/cross requests and on-exchange trade reports are not accepted during a halt phase.

After a Halt phase, trading is typically resumed according to the following procedure:

- Index futures that start regular trading hours with an Opening Auction will first enter a Re-Opening Auction for 10 minutes before continuous matching resumes.
- Other instruments enter the Pre Open phase for 10 minutes before continuous matching resumes.

Whenever an instrument enters one of the two resume states, the Trading System disseminates an order book trading action message via ITCH indicating that the order book has switched state either to Re-Opening Auction or Pre-Open.

The Re-Opening Auction is carried out according to the same principles as the normal Opening Auction.

In connection to Technical Halts, the Exchange communicates the time of the start of Pre Open/Re-Opening Auction to members via Exchange Notice.

Functionality		Technical Halt	Re-Opening Auction	
			Auction (Cross Period)	*Uncross*
Automatic Matching		No	No	Uncross algorithm
Order Management		Cancel	Enter, change, or cancel	N/A
Order Entries	**Limit:**	No	Day, IOC, GTC, GTD, or On Open/On Close if before relevant auction	N/A
	Market:	No	IOC, On Open, or On Open/On Close if before relevant auction	N/A
	Stop:	No	Day if trading is resumed before Closing Auction, IOC, FOK, GTC or GTD	N/A
Orders Executed	**Limit:**	N/A	N/A	Day, IOC, GTC, or GTD
	Market:	N/A	N/A	IOC
	Stop:	N/A	N/A	No
Implied Pricing		No		
Off-Book Trade Entry		No		
RFQs		No		
Instrument Creation		No		
State Indicator		Order Book Trading Action: Technical Halt (H)	Order Book Trading Action: Re-Opening Auction (R)	Cross Trade: Re-Opening Auction (R)
Transition		Market maker quotes are automatically cancelled.	Order Book Flush message indicates that market by order transparency is disabled.	N/A
Pre-Trade Info		Individual order deletions	No	
Post-Trade Info	**Order Book:**	No		Auction trade details.
	Off-Book:	New trades, trade cancels and trade corrections		

Table 17: *Overview of Functionality in Technical Halt and Resume States*

5.3.2.1 Intraday Changes to Scheduled Trading Hours

The Exchange may delay the start of a scheduled trading phase due to extraordinary reasons, in which case relevant instruments remain in the current scheduled phase (e.g. if delay is decided during Pre Open) or the Halt phase (e.g. if trading is suspended during the Opening Auction), depending on the circumstances.

In case Continuous Trading is resumed following a trading suspension, it will continue for at least 30 minutes after it has resumed as set out in the Exchange Rules. For this reason, the scheduled end of Continuous Trading and the start of subsequent phases including the Closing Auction, may be delayed to a later time.

In case trading is suspended during the Closing Auction, or where the start of the Closing Auction is delayed as per the above, Post-Trading may be excluded from that trading day's schedule.

In case the Exchange determines that Continuous Trading cannot be resumed after a suspension to go on for at least 30 minutes, the Exchange may instead decide to terminate early that trading day. In such scenario the Closing Auction may or may not be carried out before trading is closed for that day for relevant instruments.

In case trading is suspended during extended trading hours and the Exchange determines that trading cannot be resumed in sufficient time before the scheduled end of the relevant trading phase, the Exchange may decide to end such trading phase early. If Pre-Trading ends early, trading may resume from the Opening Auction, either at the scheduled time or at a delayed time.

Intraday changes to scheduled trading hours are communicated by the Exchange to members via Exchange Notice.

5.3.3 Suspension of Trading due to Regulatory Reasons

If trading in an underlying equity instrument is suspended due to regulatory reasons, the Exchange may also suspend trading in related derivative instruments on that underlying.

When trading in an instrument is suspended due to regulatory reasons, the Trading System disseminates an order book trading action message via ITCH indicating that the order book has switched state to Regulatory Suspension.

All open orders and quotes in suspended instruments are automatically cancelled and for the duration of the suspension, users cannot enter new orders or quotes.

Instrument creation, quote/cross requests and on-exchange trade reports are not accepted during a halt phase.

If the Exchange decides to resume trading before the scheduled close, relevant instruments at that time switch state back to Continuous Trading.

Functionality		Regulatory Suspension
Automatic Matching		No
Order Management		No
Order Entries	**Limit:**	N/A
	Market:	N/A
	Stop:	N/A
Orders Executed	**Limit:**	N/A
	Market:	N/A
	Stop:	N/A
Implied Pricing		No
Off-Book Trade Entry		Exchange staff may enter trade on behalf of a member if trade was agreed before the suspension.
RFQs		No
Instrument Creation		No
State Indicator		Order Book Trading Action: Regulatory Suspension (G)
Transition		Automatic order and quote cancellation
Pre-Trade Info		Individual order deletions
Post-Trade Info	**Order Book:**	N/A
	Off-Book:	New trades, trade cancels and trade corrections

Table 18: *Overview of Functionality During a Regulatory Suspension*

5.4 Market Conditions

The Exchange determines and communicates the market conditions for instruments as set out in the Exchange Rules.

Information about the current market conditions is provided at instrument level on market data feeds, notifying participants when stressed market conditions or exceptional circumstances are declared and when subsequently the market returns to normal conditions.

Market conditions are set and controlled by the Exchange independently from the order book state of instruments. E.g. stressed market conditions can be declared in the morning before trading starts and will remain in effect without affecting the sequence of trading phases.

By default, in the absence of stressed market conditions and exceptional circumstances, an instrument is considered to have normal market conditions.

5.4.1 Stressed Market Conditions (SMC)

For the duration of SMC, the required BBO spread to be quoted by market makers is doubled. Accordingly, the following price validations in the Trading System are adjusted:

- Price ranges price limit controls in continuous matching are widened by a factor of 2 (section 13.1.1).
- Price variations in volatility halt triggering conditions during continuous matching are increased by a factor of 2 (section 13.2.1.1).
- The conditions for accepting quote requests will consider the wider bid-offer spread requirement (section 9.1.1).

SMC also implies changes to the rules on cancellations and price adjustments of erroneous transactions, as set out in the Exchange Rules.

SMC will automatically be declared for relevant instruments when Continuous Trading is resumed following a circuit breaker halt. SMC applies from the time the order book switch state to Continuous Trading following a Volatility Halt or Volatility Stop or after an extension of the Opening Auction.

In case SMC is automatically applied, normal market conditions will be resumed after 10 minutes unless:

- A subsequent circuit breaker has been triggered within such time window; in which case the current stressed market timer is replaced by a new one of 10 minutes, which will start when Continuous Trading is resumed after the last circuit breaker.
- The Exchange extends the SMC period manually.

Additionally, the Exchange may declare SMC for all instruments of a given underlying or a group of underlyings (e.g. market-wide) when the underlying asset experience high and short term intraday volatility or when other factors causes high uncertainty in the pricing of instruments. In such events, SMC may apply from 30 minutes up until the end of the trading day. In case SMC has been declared manually by the Exchange, any subsequent circuit breaker triggered for the concerned instrument will not affect the effective time of SMC.

In case SMC applies up until market close and the Exchange determines that SMC should apply again on the following day, an Exchange Notice and a new notification on market data will be sent in the morning.

5.4.2 Exceptional Circumstances

Exceptional circumstances is a condition that the Exchange can declare for a specific or for all market makers to apply to one or several market segments as set in the Exchange Rules.

For the duration of exceptional circumstances, the obligation for the concerned market maker(s) to quote in the concerned instruments in accordance with the market making agreement does not apply.

In case the Exchange declares exceptional circumstances for all market makers on one or several market segments, the market condition for the concerned instrument changes to exceptional circumstances and participants are notified on market data and additionally via the publication of an Exchange Notice.

In case exceptional circumstances has been declared manually by the Exchange, the market condition for relevant instruments is unaffected by any circuit breaker triggered within this period.

6 Order Handling

This section describes how users can submit and manage orders in individual instruments and combinations and the different type of orders that are supported and their characteristics.

When a new order or a request to change or cancel an open order is received by the Trading System, an acknowledgement is returned to the participant via the port where the request was submitted.

Similarly, when an order is executed, triggered or expired; or where there has been an unsolicited change to an order, the Trading System sends a notification to the concerned participant via the port where the order was submitted.

6.1 Order Management

6.1.1 Order Entry

Each order must identify an active individual or complex instrument; and specify the side (buy or sell), order quantity, order type and time-in-force. Additionally, limit and stop-limit orders must specify a valid limit price. Display quantity conditions and self-match prevention identifier are optional attributes.

Furthermore, each order must identify the user (Trader ID) submitting the order and for which member (MPID).

Order attributes not directly related to how the order will be executed, but provided for information purposes, can or must be specified depending on the type of information and as required by the applicable order entry protocol. The different order attributes and their usage are described in section 6.2.

Every new order entered in the order book is assigned a timestamp for trade priority purposes and is subject to pre-trade controls as further described in section 13.

6.1.2 Order Change & Replace

Certain order attributes can be change without losing time priority. Other changes are treated as if the order is cancelled and replaced with a new order, in which case it is assigned a new timestamp and re-queued in the order book on the relevant price level.

The replace portion of an order is subject to the same pre-trade controls and validations as new orders.

The following order attributes can be changed without losing time priority:

- Decreasing total quantity on a non-reserve order
- Changing display when or method and related display low/high values on a reserve order
- Changing Trader ID (responsible user) or clearing related or free text information

The following changes will be treated as if the order is cancelled and replaced with a new:

- Changing limit or stop price
- Increasing total quantity on a non-reserve order
- Decreasing or increasing total quantity on a reserve order (will trigger a refresh).
- Decreasing or increasing initial display quantity on a reserve order (will trigger a refresh).

The following attributes are not possible to change on open orders: instrument, side, order type, TIF, self-match prevention identifier, MPID (Participant), order capacity, regulatory short codes and qualifiers and the DEA flag.

When changing an order, the user submitting the request must be identified with its Trader ID.

6.1.3 Order Execution

A user is notified in case all or a part of its order has been executed. Execution notifications are sent immediately once the trade has been made and include the necessary details for users to determine the status of their order as well as the total volume executed. Additionally, certain trade attributes describing how the order was executed are provided.

When a combination order is executed, an execution notification is sent for the complex instrument with combination net trade details and additionally an execution notification is sent for each leg instrument with the respective leg trade details.

For aggressive orders that are executed immediately on entry, one execution notification is sent per price, per Match ID per contra-order executed.

More information on how trade identifiers are assigned can be found in section 11.1.

6.1.4 Order Cancellation

Users can cancel orders either by reference to a specific order or by using the order mass-cancel feature that supports deletion of multiple orders on a port that meets the specified input criteria.

The order mass-cancel feature supports the following functionality

1. Market wide – Cancels all orders across products.
2. Instrument type specific – Cancels all orders in the specified instrument type (future, forward, option or combination).
3. Underlying specific – Cancels all orders in the specified underlying.
4. Product specific – Cancels all orders in the specified combination of underlying and instrument type.
5. Instrument specific – Cancels all orders in the specified instrument.

Further granularity can be added to each level by filtering on target Trader ID, i.e. the user owning the open orders.

When cancelling an individual or group of orders the user submitting the request must be identified by its Trader ID.

An order mass-cancel request covers all single order types but not quotes. More details on cancellation of quotes can be found in 7.4.

As an exceptional risk protection action, it is possible for a participant to mass-cancel all its open orders and quotes across connections and additionally block subsequent order entries by submitting a member kill switch request. More information on the kill switch functionality can be found in section 13.6.1.

6.1.4.1 Unsolicited Cancellations of Orders

Open orders will be cancelled automatically in the following scenarios:

- The order expires.
- The instrument is suspended for regulatory reasons.

- Cancel-on-disconnect functionality is triggered.
- The order falls outside the applicable price limits when the order book switch to an auction state.

Additionally, the Exchange can initiate a mass-cancel of open orders in case trading is halted for technical reasons and in similar scenarios.

6.2 Order Attributes

When an order is entered, certain attributes specified by the user will determine how the order is executed. Other attributes are provided for information purposes and are passed through in notifications and on trades for downstream processing.

The order types and attributes that are available are described below.

6.2.1 Order Types & Prices

6.2.1.1 Limit Order

A limit order specifies a maximum buying price or a minimum selling price. It will execute at its given limit price or better. Any remaining quantity after a limit order has been partially executed is queued in the order book in descending buy price, or ascending sell price order and joins the queue of orders at the same price level according to time priority. It remains active in the order book until it is either cancelled, executed or the order expires.

A limit order must be submitted with a valid limit price or otherwise it will be rejected. The validity of a limit price is determined by the instrument's tick size (minimum price variation) table, which defines the applicable price steps within defined price intervals. The tick size tables applying to different products can be found in Annexe D.

Subject to the strategy type, negative limit prices are valid for trades in complex instruments if the absolute value conforms to the applicable tick size.

Limit orders support all time-in-force conditions that are relevant for the applicable order book state and are available for both individual instruments and combinations.

6.2.1.2 Market Order

A market order is submitted without a price. It will trade as far as applicable price limits permit and is on entry subject to market order spread protection. See section 13.1.2 for further details on specific risk protection treatment of market orders.

If submitted for execution in continuous matching it will execute at the best available price(s) on the opposite side of the order book and can sweep through price levels to fill the order quantity.

If submitted for execution in an auction, it will execute at the equilibrium price.

Market orders are only available for individual instruments and can have time-in-force conditions IOC, FOK (continuous matching only), On Open or On Close.

6.2.1.3 Stop Order

A stop order is submitted to rest hidden outside the order book and will trigger to become a normal order if and when the market reaches or exceeds the specified stop price. Once triggered, a regular stop order becomes a market order while a stop-limit order becomes a limit order. Stop orders are only available for particular index futures.

A buy (sell) stop order will be triggered on a new trade in the regular order book during the Continuous Trading phase that has a price at or above (below) the specified stop price. Stop orders are not triggered on the resulting leg trade prices from combinations executed within the complex order book. Certain off-book trades may update the last paid price in trade statistics but will not trigger stop orders.

On arrival, a buy (sell) stop order must specify a stop price above (below) the last traded price for the concerned instrument or otherwise it will be cancelled. Similarly, a stop order is cancelled in case no trade has yet been executed in the market at the time of arrival.

A stop-limit order specifies a limit price for the converted limit order. Both stop and limit price must be aligned to applicable tick size.

The attributes on an un-triggered stop order can be changed and are subject to the same validations as on arrival.

Stop orders are always triggered at the end of a matching event. In case several stop orders are triggered at the same time, they are processed in stop price and time of entry order.

Once a stop order is triggered, the now active order is assigned a new priority timestamp and is from this point in time treated and executed as a normal order.

Pre-trade volume and value controls applies at the time of arrival while price limits apply at the time of activation. Similarly, for regular stop orders the market order spread protection applies at the time of activation.

A regular stop order must have a time-in-force set to either IOC or FOK, which will apply when the order is activated. In case the order has not been triggered at the end of the main trading session, it expires after the close in the same way as normal day orders.

A stop-limit order can have a time-in-force set to day, IOC, FOK, GTD or GTC. IOC or FOK applies in the same way as for stop market orders. In case of day, GTD or GTC validities the time-in-force applies to both the un-triggered order and will continue to apply to the converted limit order after activation.

Stop order triggering is not active during the Pre- and Post-trading sessions. GTD/GTC stop orders will remain un-triggered throughout these sessions pending activation into the Continuous Trading phase. The first possible triggering event on a day is the opening trade of the main trading session. If the opening trade is executed in the opening uncross, then the activated order is entered in sequence after the uncross and is executed in continuous matching.

ⓘ ***Note:*** *Stop orders are only available for OMXS30 index futures.*

6.2.2 Time-in-Force

On a general level, the Trading System supports the following time-in-force conditions for orders. The availability may be further limited depending on the order type and the state of the order book.

- **Day orders** are active for the remaining day until it is executed or cancelled or otherwise it expires after the close. For particular index futures that have a Post-Trading phase the order expires differently depending on when the order is entered:
  - A day order entered before or during the Closing Auction expires after the closing uncross, before Post-Trading starts.
  - A day order entered during Post-Trading expires at the end of that phase.
- **Immediate or Cancel (IOC):** The order behaves differently depending on the applicable trading mode.
  - Continuous matching – Any quantity not immediately executed on entry is automatically cancelled.
  - Auction matching – The order is active during the relevant auction phase and any quantity not executed as part of the uncross is automatically cancelled.
- **Fill or Kill (FOK):** The order is executed in full immediately on entry or else the whole order is cancelled. It is only possible to place FOK orders during continuous matching. For complex instruments, FOK orders are only executed against the best available price and in one step against either explicit or implied volume.
- **Good till Cancel (GTC):** The order is active until it is executed, cancelled or the expiration date of the instrument. On the expiration date, the order expires after the close in the same way as a day order. The order retains its time priority across dates. GTC orders are available for individual instruments and pre-defined futures spreads.
- **Good till Date (GTD):** The order is active until it is executed or cancelled or otherwise on a specified date in the future the order expires after the close in the same way as a day order. The order retains its time priority across dates. GTD orders are available for individual instruments and pre-defined futures spreads.
- **On Open:** The order is active only during the Opening Auction phase and any quantity left unexecuted after the opening uncross is automatically cancelled. If entered during the Pre-Trading phase, the order remains inactive pending the start of the Opening Auction, at which time it is assigned a timestamp and queued at the relevant price level in the order book. This TIF condition is only available for particular index futures products that start the main trading session with an auction and can only be entered before or during the current day's Opening Auction.
- **On Close:** The order is active only during the Closing Auction and any quantity left unexecuted after the closing uncross is automatically cancelled. If entered before the Closing Auction, the order remains inactive until the start of the auction period, at which time it is assigned a timestamp and queued at the relevant price level in the order book. Any quantity not executed in the closing uncross is automatically cancelled. This TIF condition is only available for particular index futures products that end the main trading session with an auction and can only be entered before or during the current day's Closing Auction.

6.2.3 Display Conditions (Reserve Orders)

A reserve order (or iceberg order) is a limit order that only displays a portion (the display quantity) of its total volume to the market as specified by the user.

On entry of a reserve order, the display quantity is assigned a timestamp and is prioritised like regular limit orders at the same price in the order book.

The display quantity is automatically refreshed from the hidden reserve when the reserve order is executed.

Instructions specified on a reserve order determines how and when the display quantity is refreshed as follows.

- **Display when:** The display quantity is either refreshed immediately after every partial fill or when the current has been executed in full.
- **Display method:** When the display quantity is refreshed, the new quantity will either be the same as the initial, or a randomised value between user-provided minimum and maximum values. If the total volume is smaller than the initial or randomised quantity, the new display quantity will be the remaining open order volume.

Every time the display quantity is automatically refreshed, it is assigned a new timestamp and queued at the given price in the order book accordingly.

In case an aggressive order remains unexecuted after the displayed quantities of reserve orders at the best price have been executed, the aggressive order may execute against the hidden volumes of reserve orders in time-priority order based on the timestamp of the hidden portions or on a pro-rata basis, depending on the applicable matching method, as detailed in section 5.2.1.1.

Display quantity can only be provided on day, GTD or GTC limit orders in individual instruments. It is not possible to change a reserve order to become a normal limit order or vice versa.

When the price, initial display quantity or total quantity on a reserve order is changed, the display quantity will be set to the lesser of its (potentially new) initial display quantity or total open order quantity. The matching engine will in such scenario assign the order a new time stamp and re-queue the displayed portion at the relevant price level in the order book.

It is possible to change refresh type and/or display method without affecting a reserve order's time priority. Such change applies the next time the order is traded to refresh.

On market data, each automatic refresh of display quantity for a reserve order is represented as a new order entry and assigned a new order ID to mask the reserve condition.

During auctions, the total open order quantity of a reserve order participates in the auction, and if the order is at the best or at the equilibrium price, it is included in the aggregated volume broadcasted in the NOII information.

The total notional value of a reserve order must at the time of entry and following any change, meet the minimum reserve order value threshold as determined by the Exchange or otherwise the order will be rejected. A reserve order can be partially filled to leave an order value that is lower than the threshold without being cancelled. The applicable threshold values can be found in Annexe D.

6.2.4 Self-Match Prevention ID Code

Users can optionally specify a self-match prevention ID code on an order, providing Participants further granularity in their control of which orders/quotes within an MPID that should be prevented from matching with each other. The behaviour of the self-match prevention mechanism is described in detail in section 13.5.

6.3 Information Attributes

6.3.1 Regulatory Party & Capacity Identifiers

The following attributes are mandatory on all order entries:

- **Order capacity:** Identifying in what capacity the order is submitted (e.g. agent, principal, market maker). In futures instruments, orders with capacity set to market maker are recognised and monitored for market maker obligations performance scoring.

Short codes and party role qualifiers for the following regulatory party identifiers are conditionally mandatory subject to the order capacity specified:

- **Client identification code and qualifier**
- **Investment decision within firm and qualifier**
- **Execution decision within firm**

Short codes for regulatory party identification are generated by each member firm, and shall be enriched post trade with long codes via the tools provided by the Exchange from time to time.

The Trading System automatically set the value of the **DEA indicator** on orders based on the configured Trader ID type and does not need to be specified. In case an order is entered with a Trader ID of type DMA or SA, but is considered a non-DEA order, it is possible to override the default and specify the DEA indicator on the order.

Detailed information on the submission and validation of regulatory party information and the short codes data enrich process can be found in the Nasdaq Nordic Implementation Guide for order record keeping at the Member Portal.

6.3.2 Clearing Related & Free Text Information

The following optional information can be specified on orders for the purpose of identification and/or downstream processing:

- **Clearing account:** Clearing instruction identifying an allocation account of the executing member where the position will be cleared.
- **Give-up instructions:** Clearing instruction identifying a member to which the trade shall be given up to in the Clearing System and optionally additional information indicating receiving clearing account and a free text message to the receiving party.
- **Open/close indicator:** Clearing instruction specifying whether the trade shall open or close a position at the Clearing House. For combinations, the same instruction is sent for all legs.
- **Client reference:** Free text information passed through on trades reported to the Clearing House.
- **Order reference:** Free text information not passed through on trades reported to the Clearing House.
- **FIA Execution Source Code:** Clearing instruction identifying the execution method at point of origin in accordance with the standard defined by the Futures Industry Association (FIA).

ⓘ ***Note:*** *The Trading System will except for formatting, not validate clearing instructions but pass the information through on trades sent to the Clearing System for subsequent processing.*

7 Quote Handling

Quote management functionality is supported via the OUCH protocol and is limited to market maker participants only.

The functionality is available for individual instruments and user-defined combinations. Quotes are not enabled for pre-defined futures spreads.

The functionality supports submission of blocks of multiple quote entries and/or cancels, packaged into a single transmission (a “mass quote”).

A market maker (MPID) can only maintain one quoted price per instrument and side, meaning the submission of a new quote in a given instrument will automatically cancel/replace any former active quote in the order book.

In addition to cancellation with reference to individual quotes as part of a quote block, a quote mass-cancel message is available allowing a participant to cancel all of its open quotes based on specific filtering parameters.

Whenever a mass quote has been received by the Trading System, an acknowledgement stating the status of each individual quote is returned back to the user. Similarly, whenever a quote side has been executed or there has been an unsolicited change, the Trading System notifies the concerned participant.

7.1 Quote Entry

It is possible to submit quotes in both individual instruments and user-defined combinations as part of the same block of quotes.

Implied trading is not supported for quotes in combinations, meaning such quote will not trade against implied-in prices or generate implied orders on the leg instruments.

Each individual quote item in a mass quote can be either a double-sided quote or a single-sided bid or offer quote.

The bid and ask prices in a double-sided quote must not cross each other or the concerned quote item will be rejected.

A quote is executed as a day limit order and similar to normal orders the quoted price in a user-defined combination can be zero or negative. Quotes are subject to the same pre-trade controls as normal orders.

7.2 Replacing Quotes

A new quote will cancel and replace any former active quote from that participant on the same side in a given instrument with the new price and quantity submitted.

Each side of a quote maintains its time priority individually from the other side. On a given instrument if a new quote entry is submitted having on one side the same price and the same size or smaller than the current quote, then that side maintains its time priority on the order book even if the other side is replaced and time priority is lost.

Similar to orders, quoting a new price or increasing the quoted size will be treated as a cancel followed by a new order entry and the quote will be assigned a new timestamp and queued at the applicable price level accordingly.

7.3 Quote Execution

A participant is notified in case a quote is executed in part or in full. Similar to notifications for orders, quote fill notifications are sent immediately by the Trading System after the concerned orders and quotes have been processed and the trade has been made.

Quote fill notifications include the necessary details for market makers to determine the current status of open quotes as well as the total volume traded in the concerned instruments. Additionally, certain trade attributes describing how the quote was executed are provided.

When quotes in user-defined combinations are executed, combination-level quote status and trade information is provided and additionally trade details for each resulting leg trade.

7.4 Quote Cancellation

Individual quotes can be cancelled as part of a mass quote.

Additionally a quote mass-cancel functionality is available allowing a market maker to pull all quotes in an underlying, an instrument type or a combination thereof. The mass-cancellation can be filtered further by specifying a Trader ID.

Active quotes in the order book are automatically cancelled in any of the following scenarios:

- Expiring quotes are deleted after regular trading hours. For index underlyings that have a futures Closing Auction, the cancellation takes place after the closing uncross. Otherwise, the cancellation is done at the time of Post Close.
- Trading is suspended for regulatory reasons.
- Trading is halted due to technical reasons.
- Trading is halted by a circuit breaker.
- Cancel-on-disconnect functionality is triggered.
- The order book switch state to auction and the quote falls outside the applicable price limits.

7.5 Information Attributes

Similar to normal orders, regulatory party identifiers for investment decision within firm and execution decision within firm as well as Trader ID are mandatory for quotes while a clearing account is optional pass-through information.

Unlike orders, the order capacity cannot be specified in mass quotes but is set automatically to “market making” by the Trading System.

8 Combinations & Implied Trading

The complex order book enables a user to execute an order priced as a single unit for trades in a combination of two or more different instruments (the “legs”).

Multi-legged complex instruments define the different combinations available for trading in the Trading System, which enable order and quote handling in the same way as for individual instruments using normal orders or quotes.

8.1 Complex Instrument Definition

Each complex instrument’s reference data defines the list of leg instruments that the combination comprise and for each leg specifies a ratio and a side.

The leg ratio defines the quantity of the leg instrument to be traded relative to the combination order quantity.

The leg side defines from a buyer of the combination’s perspective if that leg is bought or sold. Correspondingly, a seller of a combination will on each leg trade the opposite of the defined leg side.

Additionally, as part of its definition, each complex instrument carries a strategy type code that denotes the type of strategy (e.g., futures calendar spread, call vertical spread, straddle, etc.).

The Trading System supports two types of models for creating tradeable combinations as described below.

8.1.1 Pre-Defined Futures Spreads

For every underlying stock index, standard futures spreads are created automatically by the Trading System so that for each index at all times the calendar spread between the nearest and the second nearest expiry is available for trading.

A pre-defined combination continues to live across dates and remains active in the Trading System until deleted in overnight processing following the expiration day of the near leg. Similar to individual instruments a pre-defined complex instrument keeps its unique instrument ID throughout its lifetime.

The first trading day for new pre-defined combinations is the first business day following an expiration week (usually the following Monday).

The Exchange defines standard futures spreads as per the following convention:

- Leg 1: Buy far month, ratio 1
- Leg 2: Sell near month, ratio 1

This means that for each traded unit of the combination, the buyer (seller) of the calendar spread buys (sells) one contract in the far month and sells (buys) one contract in the near month.

8.1.2 User-Defined Combinations

The Trading System supports user-defined combinations of options and single-stock futures/forwards.

The creation of a user-defined combination is initiated by a user request providing the proposed leg details via the order entry protocol. The Trading System normalises each complex instrument request according to the Exchange's defined convention and validates the request.

Provided that the requested definition conforms with the conditions defined by the Exchange, the Trading System creates a new complex instrument, assigns it a new instrument ID and returns the ID and definition to the user as well as disseminating the information on market data feeds.

If a corresponding complex instrument already exists, the Trading System instead returns the existing ID of that instrument and its definition to the user.

8.1.2.1 Combinations Leg Ordering

As part of normalising a user-request, the Trading System will lower the ratios on each leg to the lowest common denominator if not already in that form and sort the legs as follows before processing and if the request is accepted, the combination is created accordingly:

1. Futures/Forwards before Calls before Puts
2. Within Futures/Forwards:
   a. By expiry, far-dated before near
3. Within Calls:
   a. By expiry, far-dated before near
   b. By strike price, lower before higher
4. Within Puts:
   a. By expiry, far-dated before near
   b. By strike price, higher before lower

If following the above sorting the first leg side is a sell, the Trading System will reverse all leg sides.

8.1.2.2 User-Request Validation

The Trading System accepts user-requests for complex instruments if they comply with all of the following conditions:

- All legs must have the same product symbol (see section for 2.3.2 definition).
- A minimum of 2 legs is required.
- A maximum of 10 option legs or 2 future or forward legs is allowed.
- For future and forward products, a spread must be created buying one leg and selling the other.
- Each leg is a different individual instrument.
- The ratio between the largest and smallest leg cannot exceed 4:1.
- Each leg specifies a ratio that is an integer number greater than 0 (zero) and equal to or less than 10.
- All legs must have the same contract size.

> ⓘ ***Note:*** *The user must consider the final definition of a complex instrument in the Trading System when entering the subsequent combination order. The combination buy/sell and/or quantity may require adjusting if the leg sides have been switched and/or ratios have been lowered as compared to the original request.*

8.1.3 Strategy Types

Combinations can be grouped into two categories: standard and non-standard strategies. All pre-defined combinations are standard while the user-defined model supports both the creation of standard and non-standard strategies.

On creation, the Trading System associates complex instruments with the relevant strategy type identifier as part of the instrument's definition.

Standard strategies are those complex instruments whose leg details conform to one of the template definitions maintained by the Exchange.

The strategy type for any new complex instrument that is not a recognised strategy will upon creation be set to "non-standard" by the Trading System.

Please see Annexe B for the full list of recognised strategies.

8.2 Combination Orders

Users can enter limit orders and quotes in complex instruments using normal order and quote messages. The Trading System does not accept market orders or reserve volume for combinations.

8.2.1 Combination Price

Combination prices are given on a net basis so that the price of a combination is the sum of each leg's price multiplied by its ratio. For combination bid (ask) orders, the price of a bought (sold) leg is added, and the price of a sold (bought) leg is subtracted.

Pricing the combination as a single unit on a net basis means that the price of a combination is:

A positive value when:

- The user is entering a bid and is willing to pay; or
- The user is entering an offer and wants to be paid.

A negative value when:

- The user is entering an offer and is willing to pay; or
- The user is entering a bid and wants to be paid.

The combination price as a formula:

$$Combination\ Bid = \sum_{b} Price_b \times Ratio_b - \sum_{s} Price_s \times Ratio_s$$

$$Combination\ Ask = \sum_{s} Price_s \times Ratio_s - \sum_{b} Price_b \times Ratio_b$$

Where:

- "b" means each leg the order is buying, each a "Bought Leg_b"
- "s" means each leg the order is selling, each a "Sold Leg_s"
- "$Price_b$" means in respect of each Bought Leg_b, the price of the leg instrument
- "$Price_s$" means in respect of each Sold Leg_s, the price of the leg instrument
- "$Ratio_b$" means in respect of each Bought Leg_b, the leg ratio
- "$Ratio_s$" means in respect of each Sold Leg_s, the leg ratio

Limit orders for complex instruments behave in the same way as for individual instruments and a combination order will execute at its given net price or better.

Combination orders can have a net price that is zero or negative as long as the strategy type allows the Trading System to break the net price into positive leg prices. E.g. technically the Trading System will not accept a strangle order if the price is less than the smallest allowed price tick on the legs multiplied by two.

The Exchange defines the tick size for a complex instruments separately from the associated future/forward or option instruments. A complex instrument will generally have a smaller minimum price variation compared to the leg instruments. The Trading System is able to calculate and execute implied orders that are off-tick on the respective leg as further described in sub-section 8.3.2.

8.2.2 Combination Quantity

The quantity in a combination order specifies the total number of units of the combination to be purchased or sold. For each unit of the combination order that is executed, the quantity traded on each leg corresponds to the number of combination units in the fill multiplied by the ratio of that given leg.

8.3 Combination Order Matching

Combination orders are executed without legging risk: The Trading System guarantees that in all situations the execution of the legs is simultaneous and contingent upon the execution of all the other legs. Similar to regular limit orders, the combination order quantity can be executed in full or in part. The relationship between the traded leg quantities will always be in accordance with defined volume ratios.

In addition to matching combination orders within the complex order book, the Trading System links and supports matching between the regular and complex order books via its implied pricing mechanisms.

8.3.1 Matching Within the Complex Order Book

The Trading System matches orders within the complex order book according to the same procedure and principles as in the regular order book for individual instruments. The matching method used for a combinations is always the same as for the product associated with the legs.

When combination orders are matched within the complex order book, the Trading System generates trades in the leg instruments and disseminates combination-level order execution info and additionally leg-level trade details on market data feeds.

The Trading System uses an algorithm to determine the leg trade prices based on the matched net price for the combination and reference prices for the leg instruments. This algorithm aims to the extent possible to generate leg prices that are within the leg BBO-spreads and aligned with the tick size on the respective leg.

Combinations often match and execute at a smaller price tick compared to their legs why it is not always possible to find on-tick execution prices for every leg trade. In such case, the Trading System will prioritise generating one leg trade at an off-tick price over splitting the leg between two partial on-tick executions.

In case one or several leg instruments do not have a BBO-spread at the time of the match, then when finding leg trade prices, the Trading System will imply a reference point from the other legs or if needed use the last paid price or a theoretical price as reference.

In certain cases it may not be possible to find leg execution prices that are within BBO on every leg, in which case the Trading System will attempt to generate execution prices as close to the BBO as possible. This could be applicable in case of combinations that due to different ratios on the legs are not possible to match with the best implied-in price for the combination.

The resulting leg trade prices from a match within the complex order book:

- Will not trigger a volatility halt in a futures leg; i.e. the prices are not tested against the condition for a circuit breaker.
- Are not eligible for determining the reference prices for circuit breakers, price limits and stop order triggering.

8.3.2 Implied Pricing & Matching

Matching of combination orders against orders in the individual leg instruments is supported by implied-in and implied-out pricing as further described in this section.

The terminology implied in/out used throughout this document is relative to the combination; an "implied-in" price is coming into a combination from the legs, while "implied-out" prices are coming out of a combination to the legs.

Implied pricing is only supported during continuous matching.

8.3.2.1 Implied-In Pricing

An implied-in price is a synthetic price for a combination that the Trading System automatically derives from quotes or orders (implied or outright) in the individual leg instruments.

The Trading System does not disseminate implied-in prices, but computes and makes each implied price level available for matching against combination orders.

Implied-in pricing is supported for all the standard strategy types listed in Annexe B.

When executing combination orders the Trading System compares the best implied-in price with the best explicit price in the complex order book. Matching against the best implied-in price will be prioritised when it is equal to or better than the best explicit price, and there is sufficient implied volume available to trade with.

When the Trading System matches an implied-in price, leg-level order execution info as well as combination-level trade details are disseminated on market data feeds.

Quotes in complex instruments are not traded against implied-in prices.

The resulting leg trade prices from an implied-in match:

- Will not trigger a volatility halt in a futures leg; i.e. the prices are not tested against the condition for a circuit breaker.
- Are eligible for determining the reference prices for circuit breakers, price limits and stop order triggering.

The following example illustrates how implied-in prices are made available for matching with explicit prices in the complex order book.

"*i*" indicates implied volume.

Price and volume within brackets are not published.

Given the below state of the order book at T4 when a new spread order arrives to sell 15 at 1.00.

In this situation the Trading System computes the best implied-in price at 1.00 using outright orders T3 and T2.

The incoming order executes 10 with orders T3 and T2 and then 5 with T1.

Note that the implied-in price T3-T2 has priority over the explicit price from combo order T1.

Spread: Buy Far, Sell Near					
ID	Qty	Bid	Ask	Qty	ID
T3-T2	*(10i)*	(1.00)			
T1	10	1.00			

Near Month						Far Month					
ID	Qty	Bid	Ask	Qty	ID	ID	Qty	Bid	Ask	Qty	ID
		…	1510.00	10	T2	T3	10	1511.00	…		

Example 6: *Best Implied-In vs. Best Explicit Combo Price*

8.3.2.2 Implied-Out Pricing

An implied order is a synthetic price and quantity in an individual instrument automatically generated by the Trading System, to represent one leg of a combination order resting in the complex order book. An implied order's execution is contingent on the simultaneous execution of the other leg of the combination against the best outright bid or offer.

The generation and matching of implied orders are supported for two-legged combinations with a standard strategy type and equal ratios. E.g., pre-defined futures spreads and options price/time spreads, straddles and strangles.

In index futures, implied orders at each price level are made available for matching against an incoming order. For eligible user-defined combinations, one implied order at the best price per side, per leg instrument is made available for matching against an incoming order. The implied order on one side of an individual option or single-stock future/forward is generated from the first combination order out of the complex instrument that can generate the best implied price. If two or more combination orders can generate the best implied price, then the oldest of the combination orders will generate the implied order.

Implied orders are disseminated in order and quote level market data when the best implied price joins or improves the best outright bid or offer and can be identified using the implied order indicator.

When an implied order is executed, leg-level order execution info and additionally combination-level trade details are disseminated on market data feeds.

Combinations often trade at a reduced price tick compared to the individual leg instruments and implied orders can be executed against at a price that is not aligned to the tick size of the leg instrument. On market data implied orders are in such situations always disseminated with a price adjusted back (bid down/offer up) to the nearest applicable price step in the leg instrument. For this reason, information

on the rank of individual orders and quotes is provided in order and quote level market data to allow market participants to replicate the state of the order book.

Quotes in complex instruments do not generate implied orders in the leg instruments.

A possible execution of an implied order will be tested against the condition for a circuit breaker and may trigger a volatility halt. Conversely, the accompanying trade in the other leg will not trigger a circuit breaker.

Both the implied order execution and the accompanying trade in the other leg are eligible for determining the reference prices for circuit breakers, price limits and stop order triggering.

The following example illustrates how implied volume is disseminated at the best price in index futures.

"*i*" indicates implied volume.

Consider the below state of the order book,

Spread: Buy Far, Sell Near					
ID	**Qty**	**Bid**	**Ask**	**Qty**	**ID**
T3	10	1.00	…		
T4	40	1.00			

Near Month						Far Month					
ID	**Qty**	**Bid**	**Ask**	**Qty**	**ID**	**ID**	**Qty**	**Bid**	**Ask**	**Qty**	**ID**
T1	15	1510.00	…			T3	*10i*	1511.00	…		
T2	5	1510.00				T4	*10i*	1511.00			

The best implied price in the far month is 1511.00. This is where the net price of the combination can be achieved when the other leg is executed against the best bid in the near month.

In this situation, two implied orders are disseminated, each with a volume of 10.

Note that combo order T3 has priority at the best price (oldest timestamp) and the volume remaining to trade with at the best bid in the near month is used for the implied order coming out of combo order T4.

Example 7: *Implied Futures Orders*

The following example illustrates how an implied order is made available for matching in case two orders in different combinations can generate implied volume at the same side of a common leg instrument.

"*i*" indicates implied volume.

Consider the below state of the order book,

Synthetic Underlying: Buy C1, Sell P1					
ID	Qty	Bid	Ask	Qty	ID
T4	10	0.25			

Call Spread: Buy C1, Sell C2					
ID	Qty	Bid	Ask	Qty	ID
T3	10	5.00			

C1						P1					
ID	Qty	Bid	Ask	Qty	ID	ID	Qty	Bid	Ask	Qty	ID
T4	*10i*	20.25				T2	10	20.00			

C2					
T1	10	15.00			

The two combinations has one common leg to buy the option C1:

- T3 can pay 20.00 for C1 when simultaneously executing the best offer of 15.00 in C2.
- T4 can pay 20.25 for C1 when simultaneously executing the best offer of 20.00 in P1.

In this situation, the best implied price of 20.25 from T4 is generated on the C1 leg.

Example 8: *Different Combinations Sharing a Common Leg*

9 Quote & Cross Requests

The quote request functionality provides members with a messaging mechanism that can be used to facilitate trading in the order book.

The functionality can be used to request a one- or two-sided quote (a "quote request") or announce the intention to execute a cross trade (a "cross request").

Quote and cross requests are always anonymous and disseminated to the entire market on market data feeds.

9.1 Quote Request Workflow

Quote requests can be user-initiated or automatically generated by the Trading System and notifies the market that there is interest to trade a specific instrument or combination.

A quote request can be for a two-sided or for a one-sided bid or offer quote to be entered in the order book for the specified instrument.

Once a quote request has been disseminated, any participant may respond by entering new or improving existing quotes or orders in the order book. Additionally for relevant market segments, market makers have an obligation to respond to valid quote requests in user-defined combinations.

The prices provided in response to a quote request are executable by all participants in accordance with the applicable matching method in the order book and are not exclusive to the requestor.

9.1.1 User-Initiated Quote Requests

Users may send quote requests in case they wish to trade an instrument for which prices are missing or in case they wish for the currently quoted price(s) to be improved.

The Exchange controls by product whether quote requests can be sent.

User requests are submitted via the order entry protocols supporting the following details to be specified:

- **Instrument:** An existing simple or complex instrument for which the quote is requested.
- **Quote Side:** The requested side of the quote to be provided. By default, a request is for a two-sided quote. Optionally it is possible to request a one-sided bid or offer quote.
- **Quote Size:** The requested size to be quoted is optional to provide.

Validation of Quote Requests

User-initiated quote requests are validated by the Trading System and rejected in case any of the following conditions are met:

- Sending quote requests is not permitted for the relevant product, as defined by the Exchange.
- The concerned instrument is not in continuous matching.
- For user-defined combinations covered by market maker obligations: There is an existing BBO spread for the concerned instrument that conforms with the applicable quoting requirement (max spread and min quantity) for designated market makers (only applicable).

- For user-defined combinations covered by market maker obligations: The response time of 20 seconds for a previous quote request in the concerned instrument has not yet elapsed, meaning the previous request is still in progress. A quote request timer that is running will be terminated early in case a trade is executed in the concerned combination.
- The requesting participant has exceeded the allowed maximum of quote requests on one day in the relevant product, as defined by the Exchange.

When a quote request is accepted, the Trading System sends a confirmation to the requester and disseminates the request via the ITCH feed.

Otherwise, the Trading System notifies the requestor in case a quote request is rejected.

ⓘ ***Note:*** *Currently quote requests are supported for all instruments except OMXS30 index futures and their related futures spreads.*

9.1.2 System-Generated Quote Requests

In addition to user requests, the Trading System automatically generates a quote request at the time of creation for every new user-defined combination.

Automatically generated quote requests are always two-sided and do not specify a quantity, indicating that appointed market makers shall respond with two-way prices and quote sizes as required by their market maker obligations.

On market data when a user-defined combination is created, a quote request message will in sequence always follow the instrument notification.

9.2 Cross Request Workflow

A cross request is a type of quote request that Users may submit as part of the required procedure for entering matching buy and sell orders in the order book to execute a committed cross trade as set out in the Exchange Rules.

The required procedure involves two steps:

1. First a cross request must be sent to notify the market before the initiating order (typically a client interest) is entered in the order book. The cross request must specify the volume of the initiating order.
2. Secondly, the initiating order must be entered within a time window starting 1 second and ending 20 seconds after the cross request was accepted by the Trading System. This allows other participants to take part in the price discovery process and potentially interact with the order flow.

There is no requirement regarding the time of entry of the contra-order in relation to the initiating order or the cross request.

The initiating and contra-orders as well as any orders or quotes entered in response to a cross request are executable by all participants in accordance with the applicable matching method in the order book.

The Exchange controls by product whether cross requests can be sent.

Cross requests are submitted via the order entry protocols using the quote request message with the following attributes set:

- **Instrument:** An existing individual or complex instrument for the cross trade.
- **Quote Side:** Must be provided as “cross”.
- **Quote Size:** Must be provided when the side is set to cross.

A cross request is always accepted by the Trading System and disseminated on market data feeds as long as:

- cross requests are allowed for the concerned instrument; and
- the concerned instrument is in a continuous matching state.

When a cross request is accepted, the Trading System sends a confirmation to the requestor and disseminates it on market data feeds.

Otherwise, the Trading System notifies the requestor in case a cross request is rejected.

Market makers may, but are not required to, quote prices in the order book in response to cross requests. Therefore, cross requests are not subject to or interfere with the validations of regular quote requests, and vice versa. This means that a cross request can still be sent when a regular quote request is in progress or when there is a qualifying BBO spread for the concerned instrument. Similarly, a cross request is never considered in progress and do not prevent regular quote requests from being submitted.

ⓘ ***Note:*** *Currently cross requests are supported for all instruments except OMXS30 index futures and their related futures spreads.*

10 Trade Registration Facility

The Trade Registration Facility (TRF) enables members to report off-book trades for registration in the Trading System and subsequent publication and/or clearing by the Clearing House.

Off-book trades are trades in cleared Exchange-listed instruments that have been negotiated directly between the parties away from the order book.

The TRF supports two types of off-book trade reporting:

- **Block Trade Reporting:** Block trades are high-volume trades that are subject to the Exchange and Clearing Rules including but not limited to conditions for acceptable prices, volume thresholds and reporting deadlines. Block trades avail from the Exchange's pre-trade transparency waivers in accordance with MiFIR.
- **OTC Trade Reporting:** Cleared OTC trades are executed subject to the Clearing Rules but not the Exchange Rules. Members may optionally use the Trading System to publish the reported trade details subject to the relevant OTC publication service agreement.

10.1 Trade Reports

Members can report off-book trades in listed instruments either electronically via the FIX protocol, or via phone or email in which case the Exchange registers the trade on behalf of the reporting member.

Users identify individual instruments in both block and OTC trade reports using the same identifiers as when placing orders.

Off-book trades are bilateral or paired from a reporting perspective meaning that they have exactly one buyer and one seller. Down-stream in the Clearing System a broker may split and give up parts of each trade side in case a multilateral trade has been arranged (multiple buyers and/or sellers).

The TRF supports two modes for handling of trade reports, both applicable for individual and combination trades, as follows.

10.1.1 Two-Sided Reports

A two-party report in FIX terminology.

One member reports both sides of an agreed trade in its own name.

If the trade report is accepted, an acknowledgment is sent to the reporting user.

The trade(s) is then immediately registered in the Trading System and trade confirmations are sent. If the trade report includes a combination of instruments, one confirmation is sent per leg.

Two-sided reports can be used by members to report trades with or between clients.

Additionally, an interdealer broker that is also a member and facilitates a trade between other members, can use a two-sided report to report the trade in its own name. The trade-sides can then be given up to the relevant counterparties in the Clearing System.

10.1.2 One-Sided Reports for Matching

A one-party report for matching in FIX terminology.

Where two different members have agreed a trade, each member can report the respective side using a one-sided trade report and identify the counterparty.

As soon as one side has been accepted, an acknowledgement is sent to the reporting User, and a notification including the relevant trade details is sent to the contra-side participant on all FIX sessions associated with that MPID.

The counterparty can wait for the notification to appear or report its side independently. Once both trade-sides have been accepted and all the reported trade details plus participant identifiers (executing/contra) match, the trade is registered in the Trading System, at which time trade confirmations are sent to both parties. If the trade report includes a combination of instruments, one confirmation is sent per leg. Any un-matched trade reports at end of trading is automatically cancelled.

> ⓘ ***Note:*** *Subject to the appropriate arrangements, a member may submit OTC trade reports in flexible instruments that do not require disclosure (trade type 54), directly to the Clearing System. A one-sided OTC trade report submitted to the Trading System cannot match against a contra-side report submitted to the Clearing System.*

10.1.3 Trade Information

Trade information can or must be provided in trade reports as follows:

- Instrument, price and volume (required)
- Trade type and flags – as further detailed in section 10.2.
  - Trade type (required)
  - Benchmark and/or agency crossing flags (optional)
- Time of agreement (required) – date and time

Multi-Legged Trades

In case of a multi-legged trade in a combination of instruments, then leg instruments, leg prices and leg volumes are instead provided in a multi-legged entry as follows.

- Leg details array (2-10 entries):
  - Leg Instrument (required) – Identifying instrument of respective leg.
  - Leg Price (required) – Identifying price of respective leg.
  - Leg Side (required) – Identifying if the buyer of the combination (buyer in trade report) is buying or selling the respective leg.
  - Leg Volume (required) – Identifying volume in respective leg.

The Trading System applies the following additional validations to multi-legged trade reports and rejects the whole report unless all conditions are met.

- A minimum of 2 leg instruments is required.
- A maximum of 10 legs is allowed.

- The one same instrument can appear in multiple leg entries, in which case each entry for that instrument needs to have a different price. This allows the parties to split the volume in one instrument across two partial leg executions increasing the granularity in pricing of the combination.

10.1.4 Party Identifiers & Information Attributes

Party identifiers and information attributes are provided per side of a trade report, meaning no leg-specific entries in case of combination trades, as follows:

Buyer/Seller

- **Two-sided reports:** The reporting user identifies the executing participants by specifying the relevant MPID for buy and sell, respectively. The same MPID as the reporting FIX session is associated with is often specified on both sides. However, the MPIDs may be different in case one member uses multiple MPIDs[10], e.g. for agency vs. market making arm.
- **One-sided reports:** Like order entries, by default the executing participant in the trade report is implied from the reporting FIX session. Instead, the trade report must identify the contra-side participant by specifying the relevant MPID. In case a member uses multiple MPIDs, it is however possible to specify in the trade report an executing participant that is different from the one associated with the FIX session.

Information Attributes

Information attributes applicable to the buyer and seller, respectively, are provided per side as follows:

- Trading capacity (required if block trade) – E.g. agent or principal
- Trader ID (required if block trade)
- Regulatory party identifiers (optional) – Same short codes and party role qualifiers as available for order entries (sub-section 6.3.1). Unlike orders, this information is not mandatory in trade reports but can be provided for transaction reporting purposes.
- Clearing instructions and other pass-through information (optional) – With the exception of the FIA Execution Source Code, the same information attributes are available as for order entries (section 6.3.2).

10.2 Reporting Deadline

As set out in the Exchange Rules, the trade details of a Block Trade must be registered in the Trading System as soon as is technically possible, however not later than 5 minutes after the time of agreement or, for Block Trades reported to the Exchange by phone or email, not later than 3 minutes after the time of agreement to ensure proper publication by the Exchange.

Members must indicate the time of agreement in trade reports for this purpose.

In case of one-sided trade reports for matching, both sides must be reported and match within the reporting deadline.

[10] Requires relevant entitlement configured for reporting participant.

10.3 Block Trade Thresholds

The reported quantity in a block trade must meet or exceed the applicable minimum block trade size defined by the Exchange or otherwise the trade report is rejected.

Additionally, if the parties request for the publication of a block trade to be deferred, then the reported quantity must meet or exceed an even higher volume threshold as defined by the Exchange, or otherwise the trade report is rejected.

For multi-legged trade reports, the validation is carried out so that the quantity of at least one leg must meet or exceed the threshold applicable to that instrument or otherwise the trade report is rejected. E.g. a futures-tied combination is accepted as long as the quantity of an options leg meet or exceed the relevant threshold as defined for that option product.

The Exchange sets minimum block trade sizes and deferral thresholds for instruments in number of contracts terms per product at or above regulatory pre- and post-trade large in scale values. The Exchange's methodology for determining the thresholds can be found in Annexe C. The configured values that apply to different products from time to time can be found in Annexe D.

For the avoidance of doubt, the Exchange-defined block trade thresholds do not apply to OTC trade reports.

10.4 Maximum Trade Report Size

To prevent exceptionally large trade sizes from entering the system, a trade report must not exceed 100,000 contracts, or otherwise it will be rejected.

For multi-leg trade reports, each leg is validated individually against the applicable limit, and if at least one leg exceeds the threshold, the whole trade report is rejected.

10.5 Off-Book Trade Prices

A reported off-book trade price is not required to be aligned to the tick size applicable for the instrument in order book trading.

Minimum price increments in trade reports for different instruments applies as follows.

Market Segment	Underlying Type	Instruments	Min Price Increment
All	Index	All	0.01
Swedish, Danish, Norwegian	Stock	Standard opt, fut, fwd	0.01
		Flexible opt	0.01
		Flexible fut, fwd	0.0001
Finnish	Stock	Standard opt, fut, fwd	0.001
		Flexible opt	0.001
		Flexible fut, fwd	0.0001

Table 19: *Off-Book Price Increments*

Depending on if the applicable trade type is a standard block trade then the Trading System will additionally control that the reported price is at or within the current BBO spread in the order book at the time of reporting or otherwise reject the trade report. For standard multi-legged trade reports, all legs must pass the BBO spread control or the whole package is rejected.

Additional conditions including acceptable price ranges (as described below) for Block Trades that are not system enforced on entry apply as set out in the Exchange Rules. Reported prices are supervised by the Exchange on a post-trade basis and may become subject to cancellation or modification.

Acceptable Price Range

The price of a Block Trade must at the time of agreement lie within an acceptable price range as set out in the Exchange Rules.

The lower and upper limits of the acceptable price range should be determined as the volume weighted average price of bid and ask orders respectively, available in the order book for a reference quantity based on market maker quote sizes for the concerned instrument. For the reference quantities that apply from time to time and examples on how to calculate an acceptable price range, see Annexe C.

In any case, an acceptable price range for a Block Trade must not expand outside the prevailing order price limits in the order book (see Annexe D) which set floor and ceiling values for the calculation accordingly.

10.6 Trade Types & Flags

When submitting off-book trade reports to the exchange, members are required to identify the type of trade executed, using the relevant code as set out in Table 20.

Additionally trade flags can be provided in trade reports as follows:

- **Benchmark:** Flag is used to indicate that the reported price has been calculated over multiple time instances according to a given benchmark, e.g. VWAP. Special price conditions apply to benchmark trades under the Exchange Rules.
- **Agency Cross:** Only applicable to OTC trades and can be used to flag that the investment firm has brought together two clients' orders with the purchase and the sale conducted as one transaction and involving the same volume and price.

Trade Type Name & Code	Category	Use Case	Deferral Eligible
Standard Trade (1)	Block Trade (On-Exchange)	A block trade concluded at a price that lies within an acceptable price range at the time of agreement, and where the reported price(s) is (are) equal to or below the best offer, and/or equal to or higher than the best bid at the time of registration, or there is no BBO spread.	No
Outside Spread Trade (101)	Block Trade (On-Exchange)	A block trade concluded at a price that lies within an acceptable price range at the time of agreement, or in combination with the benchmark flag in case of a benchmark transaction, but the price (of at least one leg) is below the best bid or above the best offer, respectively, at the time of registration.	Yes
Off Hours Trade (10)	Block Trade (On-Exchange)	A block trade concluded at a price that lies within an acceptable price range at the time of agreement, or in combination with the benchmark flag in case of a benchmark transaction, and the trade is reported outside of the main trading session.	No
Cash Related Trade (46)	Block Trade (On-Exchange)	A block trade concluded in connection to a reference transaction in a related equity instrument or basket of equity instrument, and the price lies within an acceptable price range at the time the reference price was struck at market.	Yes
Exchange Granted Trade (52)	Block Trade (On-Exchange)	A block trade concluded subject to an exception to pre-defined conditions for price or reporting deadlines under an individual or general authorisation from the Exchange.	Yes
Non-Disclosed OTC Trade (54)	OTC Trade	A trade in a listed instrument executed on an OTC basis outside the Exchange Rules and reported for clearing only without publication.	N/A
Disclosed OTC Trade (154)	OTC Trade	A trade in a listed instrument executed on an OTC basis outside the Exchange Rules and reported for clearing and automatic publication through the Exchange's APA service.	No
SI Trade (155)	OTC Trade	A trade in a listed instrument executed by a systematic internaliser outside the Exchange Rules and reported for clearing and automatic publication through the Exchange's APA service.	No
Flexible Conversion Trade (157)	OTC Trade	A non-price forming multi-legged trade swapping a position in a flexible instrument for an economically equivalent standard instrument.	N/A

Table 20: *List of Trade Type Codes*

10.7 Deferred Trade-Publication

Users can request deferred trade-publication as detailed in the previous section. In case of one-sided reports, both parties must indicate that the trade is to be deferred.

It the Trading System accepts the deferral request (subject to deferral volume threshold), the trade is not immediately published but the publication and updating of trade statistics is deferred until end of trading as follows.

Market Segment	Normal Days	Half-Days
Swedish	17:30	13:00
Danish	17:00	N/A
Norwegian	16:25	13:05
Finnish	17:30	N/A

Table 21: *Deferred Trade-Publication Time by Market Segment*

For the avoidance of doubt, the deferral only concerns public trade reporting on market data feeds and trade confirmations are still sent to the involved parties and to the Clearing House at the time of registration.

10.8 Trade Reporting Hours

Block trades can be reported during a trading day as follows.

Trading Phase	Block Trades
Pre Open	Not accepted
Pre-Trading (Futures)	Exchange Granted Off Hours
Opening Auction (Futures)	
Continuous Trading	All except Off Hours
Closing Auction (Futures)	Exchange Granted Off Hours
Closing Uncrossed (Futures)	Exchange Granted Off Hours
Post-Trading (Futures)	Exchange Granted Off Hours
Post Close	Exchange Granted Cash Related Off Hours
Closed	Exchange Granted Cash Related Off Hours
Volatility Auction or Stop	All except Standard and Off Hours
Opening or Closing Auction Extension	Exchange Granted Off Hours
Regulatory Suspension	Exchange Granted (report via phone/email may be accepted if time of agreement is before time of suspension)
Technical Halt (Extraordinary)	Not accepted
Re-Opening Auction	Not accepted

Table 22: *Trade Types Available by Trading Phase*

OTC trade reports are accepted from Pre Open until end of day.

11 Trade Management

11.1 Trade Identification

The Trading System assigns trade identifiers out of matching events on a price-aggregated basis.

Two types of identifiers are generated as follows.

11.1.1 Match ID

In a matching event, the Trading System generates a unique Match ID:

- Per instrument
- Per price level
- Per aggregate of volume executed against outright orders
- Per implied price/order

The Match ID is unique across the Trading System within a trading day and designates a single deal.

The number is the same for buyers and sellers and used in both public and private execution and trade messages.

At the same price in one instrument in case of two or more resting orders, one Match ID can have multiple buyers and/or sellers.

For combination trades, the leg-level trade details and the combination order fill itself are each assigned a unique Match ID.

The Match ID corresponds to the Trading Venue Transaction ID Code (TVTIC) concept in MiFIR/MiFID II.

11.1.2 Combo ID

In a matching event, the Trading System generates a unique Combo ID for all the resulting trades generated from the input of an aggressive combo order:

- Per net price
- Per aggregate of synthetic vs. outright volume executed

The Combo ID is unique across the Trading System within a trading day and links the leg trades with the relevant combination order fill at a given net price so that the combo and legs share the same ID.

It is used in both public and private execution and trade messages.

For matches within the complex order book and for multi-legged trade reports, the Combo ID is the same for buyers and sellers. In an implied matching scenario, the Combo ID is only populated in fill notifications for the combination order. In a matching event involving two or more different combinations, the Combo ID is shared between every involved combination order and all their related leg trades.

The Combo ID is passed through on trades sent to clearing and can be used to link the legs of a combination trade in the Clearing System.

11.2 Trade Flags & Attributes

The Trading System flags and sets attributes on trades that describe how the trade was executed.

The information is included in order execution notification and trade confirmations sent to users as follows.

- **Liquidity Indicator:** Describing the type of execution and set to aggressive, passive or undefined. Please see the below table for details on how this attribute is set for combination trades.
- **Order Category:** Describing the type of order behind the trade (order, quote or combination order).
- **MMT Trade Flags:** Information is provided in order execution notifications and off-book trade confirmations to allow flagging of trades in accordance with the FIX MMT (Market Model Typology) standard. Where the flag at a certain MMT level cannot be implied from alternative information provided, the actual field with the applicable flag set is provided in the notification/confirmation from the Trading System. Detailed information on the MMT standard can be found at the FIX Trading Community website.

Execution Scenario	Liquidity Indicator
Match within complex order book	Arriving combo order: • Complex execution is aggressive • Leg trades are aggressive Resting combo order: • Complex execution is passive • Leg trades are passive
Implied-in match	Combo order: • Complex execution is undefined • Leg trades are aggressive Counterparty executions in leg instruments on regular book are passive
Implied-out match	Resting combo order: • Complex execution: Undefined • Implied order leg: Passive • Other leg: Aggressive Counterparty to implied order execution on regular book is aggressive Counterparty execution in other leg instrument on regular book is passive

Table 23: *Liquidity Indicator in Combination Trades*

11.3 Clearing of Trades

Details of executed trades are immediately sent to the Clearing House after the concerned orders or trade reports have been processed and the trade has been executed or registered in the Trading System, respectively. For combination order executions, only the leg trade details are sent to the Clearing House for further processing.

The Clearing House then subsequently sends trade confirmations with relevant information to members via the Clearing System interfaces ("clearing trade information").

The Instrument Symbol is the common identifier of individual instruments used by both Trading and Clearing Systems.

11.3.1 Clearing Trade Information

The clearing trade information sent to members will relay the following information passed through on trades sent by the Trading System:

- Trade details: Instrument, price, volume and side.
- Exchange order and trade identifiers: Order ID, Match ID and Combo ID enabling traceability across Trading and Clearing Systems
- Liquidity indicator
- Off-book trade details: Trade report type and time of agreement
- Regulatory party and capacity identifiers (sub-section 6.3.1)
- Clearing instructions and other pass-through information (sub-section 6.3.2)

Additionally, the clearing trade information will also include processed information by the Clearing System, relaying information on the effective position update of the trade (open or close), the clearing account on which the trade was cleared and if applicable the participant and account to which the trade was given up to. The resulting information is based on membership configuration and/or the clearing instructions specified on the order.

Based on information received from the Trading System, the Clearing System will identify how the trade was executed and provide the following attributes in clearing trade information.

Venue of Execution

Specifies the segment MIC of the instrument in case the trade was executed in the order book or if it is a block trade reported under the exchange rules.

Otherwise, for OTC trade reports will be set to "XOFF" or "SINT" depending on the trade report type.

Stressed Market Indicator

Identifies whether the trade was executed during a time when the Exchange had declared Stressed Market Conditions. This trade attribute is used by the Clearing House for billing purposes related to market making activity.

Deal Source Information

The Clearing System categories and assigns a deal source code to trades to identify the type of trade execution as follows.

The deal source information is used by the Clearing House for billing purposes.

Code	Name	Abbreviation	Description
1	Electronically Matched	AUTO	Trades from outright orders and quotes executed in continuous matching.
7	Electronically Matched Combination	COMBO	Trades from combination orders and quotes executed within the complex order book.
20	Electronically Matched Auction	AUCTION	Trades outright orders and quotes executed in auction matching.
43	Combo vs. Outright	COMBO	Trades from combination orders executed against orders in the leg instruments.
46	Negotiated Outside Exchange	OFF-BOOK	Single trade executed away from the order book.
39	Negotiated Outside Exchange Combination	OFF-BOOK	Multi-legged trade executed away from the order book.

Table 24: *Deal Source Codes in Clearing System*

MMT Trade Flags

The Clearing System will determine the applicable MMT flags for trades and provide a concatenation of the “efficient” codes at each MMT Level in clearing trade information.

11.3.2 Clearing Trade Generation

Based on the information received from the Trading System, the Clearing System generates clearing trades and sends information to participants on a price-aggregated basis.

This means that out of one matching event in the Trading System, a clearing trade is created per instrument, per side, per Order ID, per Match ID, per price.

When an aggressive order is executed against two or more orders at the same price in the order book, there will be a one-to-many relationship between that participant's resulting trade record in the Clearing System and order execution notifications sent from Trading System. The traded volume can be reconciled between the two using the Exchange order and trade identifiers passed through on trades.

11.4 Trade Cancellations & Corrections

The Exchange may cancel trades or correct trade details in case of erroneous executions or entries, as set out in the Exchange Rules. Trades can be cancelled, or price adjusted. Additionally, off-book trades can have the volume, side, time of agreement, and/or off-book trade report type/flags modified.

Cancellations or corrections to order book trades are carried out by the Exchange on “T” as soon as possible following the original trading time.

Erroneous off-book trade entries are generally cancelled or corrected on “T”, but can under certain circumstances be cancelled or corrected on a later date.

In case the Exchange cancels or corrects a trade, every involved participant is notified via the order entry protocol. The notification identifies the original trade and in case of corrections, relays information about the updated trade details.

For combination trades, trade cancellations and corrects are carried out on a leg-by-leg basis. This means that in case of a cancellation or a correction, notifications are only sent identifying the original leg trade details.

Similarly, the Clearing System will send a trade reversal message to every involved clearing member via the Clearing System interfaces, which offsets the original trade component. In case of corrections, additionally new clearing trade information is sent to the involved parties with information about the updated trade details and their resulting positions.

In case one or more parts of a trade has been subject to post-trade modifications, e.g. allocations and/or give-ups in the Clearing System, then such clearing-related transactions may need to be first reversed in the Clearing System before the market-side trade can be cancelled or corrected by the Exchange. The concerned members receive notifications about such reversals that affects their position through their connection to the Clearing System.

12 Market Data

12.1 Market Status Information

Information about the status of instruments is published in real-time as follows.

- Trading phase changes (order book state change)
- Trading halts and resumptions (order book state change)
- Market conditions changes

12.2 Order Book Information

Anonymous pre-trade information is disseminated as follows.

12.2.1 Continuous Matching

Market-by-Order (Order and Quote Level Data):

- Full depth with price and displayed quantity of every active order and quote resting in the order book.
- Series of order event information including executions to track life of an order or quote.
- Two-sided quotes are identified separately.
- Implied orders are identified by the implied order indicator.
- Order and quote entries and updates include information on their rank allowing clients to replicate the state of the order book in case of implied orders calculated and ranked at a more aggressive price but disseminated at a price aligned back to tick on the leg.
- Trade info for matches against non-displayed interest (e.g. reserve).
- Non-active orders held outside order book are not published including stop orders, hidden reserve and On Open/On Close orders.

Market-by-Level (Price-Level Aggregated Data):

- Aggregated displayed volume from active orders and quotes for each of the five best price levels per side.
- Number of active orders and quotes at each of the five best price levels per side.
- Series of price event information including executions to track state of order book.

Quote & Cross Request Information

- Indicating interest to trade or intention to send crossing orders and may include volume and/or side.

12.2.2 Auction Trading Mode

- No market-by-order or market-by-level is available during scheduled or unscheduled auction periods including extensions.
- NOII information as detailed in sub-section 5.2.1.2 is sent at the start of each auction and in real-time as order entries update the data.
- At the end of an auction when the order book is uncrossed, trade information is published on an aggregated basis specifying the aggregated trade volume and the number of trades matched. Additionally details of each individual trade is published.

12.3 Trade Reporting

In addition to order book execution data, the following trade ticker information is published:

- **Order Book Trades:**
  - Execution time
  - Trade price
  - Trade volume
  - Venue of execution
  - MMT flags
- **Off-Book Trades:**
  - Publication time
  - Trading date and time of agreement
  - Trade price
  - Trade volume
  - Trade type
  - Venue of execution
  - MMT flags
- **Trade Cancels & Corrections:**
  - Cancel identifying original ticket published
  - Correction ticket including modified details

Information is provided in order execution and trade messages to allow flagging of trades in accordance with the FIX MMT (Market Model Typology) standard. Where the flag at a certain MMT level cannot be implied from alternative information provided, the actual field with the applicable flag set is provided. More information on the MMT standard can be found on the FIX Trading Community website.

12.4 Exchange Trade Statistics

Trade statistics refer to trades of the current business day and are calculated for each instrument and reported in real-time with every eligible trade.

In addition to real-time statistics, end-of-day statistics ("order book summaries") are reported per instrument.

12.4.1 Price & Volume Concepts

The following trade statistics are calculated in real-time with every trade.

Trade Statistics	Description
Last Paid Price	Price of most recent execution in the order book or block trade reported with trade type standard. ***Note:*** *For particular index futures, this statistic is reset after the pre-trading session.*
First Paid Price (Opening)	First last paid price of the day. ***Note:*** *For particular index futures, this statistic is reset after the pre-trading session.*
High and Low Prices	Highest and lowest trade prices of the day, respectively, from order book trades and block trades of type standard or outside spread.
Accumulated Volume	The total number of contracts of order book and block trades published during the trading day.
Accumulated Turnover	The corresponding notional amount of the accumulated volume.
Nbr of Trades	The total number of trades published during the trading day
Reported Volume	The total number of contracts of block trades published during the trading day.
Reported Turnover	The corresponding notional amount of the reported volume.
Last Trade Report Price	Price of most recent block trade reported on the Exchange.
Last Trade Report Volume	Volume of most recent block trade reported on the Exchange.

Table 25: *Trade Statistics*

Deferred block trades if eligible, will update the relevant statistics at the time of publication.

Cancellation or correction of a trade that has contributed to one or several statistics is updated accordingly.

OTC trade reports do not contribute to any of the trade statistics.

12.4.2 End-of-Day Statistics

At the end of the trading session, the system will determine and report end of day (or end of session) statistics for each instrument.

The end of day statistics provide the final value of price and volume statistics.

The timing of generation of end of day summaries and their inclusion of trades are as follows.

- Final price statistics are reported after the close, for particular index futures this is after the closing auction uncross.
- Final volume statistics (volume and turnover) are reported before the Trading System closes. Will include Post-Trading volume and after-hours trade reporting.

12.5 Open Interest & Settlement Prices

Open interest information is published per instrument as follows.

- For index futures open interest for “T” is published at on “T”+1 CET 13:00 as revised open interest. Meaning the figure reflects open interest end of “T” taking into account “T”+1 position adjustments in the morning.
- For all other instruments open interest for “T” in morning on “T”+1 before Pre Open.

Settlement prices are made available as soon as possible after the close.

13 Market Safeguards

13.1 Pre-Trade Controls (Exchange-Defined)

Exchange-defined pre-trade controls include mandatory checks of prices and sizes to prevent erroneous order entries and trades.

The Trading System controls all order and quote entries, including the replace portion of a changed order, and rejects or cancels orders and quotes that exceed any of the applicable Exchange-defined price and size limits.

Whenever an order or quote is rejected or cancelled due to a pre-trade control, the concerned user is notified with the applicable reject code in the trading protocol.

13.1.1 Limit Order Price Controls

To prevent obviously erroneous limit prices from aggressively sweeping through the order book, the Trading System rejects or cancels any order that exceed the applicable Exchange-defined price limit.

If one side of a quote entry exceeds the applicable price limit, the Trading System will automatically reject both sides of that quote entry and cancel any open quote in the applicable instrument from the concerned market maker.

A product's price limit table defines the acceptable price variations within defined price intervals, for near (< 3 months) and far dated (3+ months) expiries, respectively. The price limit tables that apply to different products from time to time can be found in Annexe D.

In exceptional cases, the Exchange may, at its discretion, adjust acceptable price variations

13.1.1.1 Continuous Matching

Throughout trading phases with continuous matching, the Trading System calculates and applies one-sided price limits from a reference price so that an incoming buy order/quote with a limit price above the upper limit, and a sell order/quote with a limit price below the lower limit, is rejected.

The upper (lower) limit for an instrument is calculated by applying the acceptable price variation above (below) the applicable reference price at the time of entry.

The price limits adjust dynamically throughout the trading phase as the reference price is updated. The lowest limit is always the greater of the smallest tick size and the calculated value. In case the upper (lower) price limit is calculated off tick, it is aligned down (up) to the nearest valid limit price.

In continuous matching, price limits do not prevent bids (offers) below (above) the current market.

For combinations and negative reference prices, the price variation applicable for their absolute value is used.

13.1.1.1.1 Reference Price Selection

For the purpose of this section "LP/TP" means the last paid or a theoretical price, whichever is the most current.

The dynamic reference prices are determined by the following rule sets.

Individual Futures/Forwards or Options

1. If the best bid-offer spread is valid, then the reference price is:
   - Best offer for the upper limit
   - Best bid for the lower limit
2. If the best bid-offer spread is not valid, because it is too wide or in case there is no spread, then the last paid or a theoretical price (LP/TP), whichever is the most current, is compared against the best bid and offer. The reference price for the lower and upper limits, respectively, is then determined as shown in the table below.

Order Book	Status	Lower Limit Ref.	Upper Limit Ref.
Bid-offer spread	LP/TP at or within BBO spread	LP/TP	
	LP/TP through best bid or offer	Best bid	Best offer
Offer(s) only	LP/TP below best offer	LP/TP	Best offer
	LP/TP through BO	Best offer	
Bid(s) only	Best bid below LP/TP	Best bid	LP/TP
	LP/TP through best bid	Best bid	
Prices missing	Bid or offer not available	LP/TP	

Table 26: *Fallback Reference Prices for Price Limits*

In cases where no bid, offer, last paid (LP) or theoretical price (TP) is available at the time of order entry, the price limit control cannot be carried out.

Note that in case an implied order calculated off tick on a leg of a combination is best bid or offer, then the displayed price aligned to tick is used to calculate a price limit.

The last paid used for reference price selection is the official last paid price in trade statistics as opposed to the last execution price in the order book. This may include eligible off-book trades reported to the Exchange (please see further detail in section 10).

Combinations

1. If the explicit BBO spread is valid and smaller than the implied-in BBO spread, then the reference price is:
   a. The explicit best offer for upper limit; and
   b. The explicit best bid for lower limit.
2. Else if the implied-in BBO spread is valid and smaller than the explicit BBO spread, then the reference price is:
   a. The implied-in best offer for upper limit; and
   b. The implied-in best bid for lower limit.
3. Else if both explicit and implied-in BBO spreads are invalid (spread is too wide or prices are missing), then the reference price for buy and sell orders is a theoretical price for the combination derived from the legs using for each leg instrument a theoretical price.

13.1.1.1.2 BBO Spread Validity

The BBO spread validity test for the reference price selection is carried out as follows.

- First, the acceptable price variation above the best offer or below the best bid is calculated, i.e. as if the first steps of the reference price selection rules would be applied.
  - If there is an offer-only market, then the smallest tick size is used as bid to determine a spread.
  - If a bid-only market, then the BBO a spread is automatically considered invalid.
- If the BBO spread is wider than the acceptable price variation above (below) best bid (offer) multiplied by a factor of 1.5 for futures or 2.0 for options, then the BBO is invalid and the second step in the reference price rule for individual instruments, or third step for combinations, is applied.

13.1.1.1.3 Mid-Price Adjustment

The acceptable price variation above/below the applicable reference price may be increased when step 2 of the reference price rule for individual instruments is used, or if step 3 is used for combinations, as follows.

Whenever a theoretical price is used as reference, or if the order book is empty (no best bid or offer) and the last paid price or a theoretical price is used as reference; then the acceptable price variation is increased by a factor:

- 5.00 for futures
- 10.00 for options

This is done to account for the price used being a mid-price estimation that is not a live price.

13.1.1.2 Auction Trading Mode

For index futures and throughout auction trading mode, the Trading System calculates and applies two-sided price limits from a reference price so that incoming orders and quotes with a limit price above the upper price limit, or below the lower price limit, are rejected.

At the start of each auction phase, any limit order resting in the order book outside the applicable two-sided price limits is automatically cancelled.

Auction Reference Price

The reference price used to calculate price limits during auction phases is the most recent execution price (order book) or the settlement price, whichever is the most current.

13.1.2 Market Order Price Controls

To prevent erroneous trade prices from market orders during continuous matching, the Trading System uses price limits to perform two controls for market order entries (including the triggering of stop orders) as follows.

13.1.2.1 Market Order Spread Protection

Before accepting a market order, the Trading System controls that the instrument has a valid BBO spread or otherwise the order is rejected.

The BBO spread validity is determined in the same way as for limit order price protection, ensuring that the spread is not wider than the applicable price variation multiplied by a factor of 1.5 futures and 2.0 for options.

13.1.2.2 Market Order Trade Range

Whenever a market order entry passes the spread control, the Trading System determines the acceptable trade range using the same price limits as for limit orders as follows.

- The acceptable market order trade range for buy (sell) orders is up (down) to and including the upper bid limit (lower ask limit).
- A market order with time-in-force FOK is cancelled in full in case the whole order cannot be filled within the acceptable trade range.
- A market order with time-in-force IOC will execute against prices within the acceptable trade range. Any remaining part that is not filled is cancelled back.

13.1.3 Order Size Controls

To prevent exceptionally large order sizes from entering the order book, the Trading System rejects any order that exceed at least one of the two applicable size limits defined for the instrument by the Exchange.

The two size limits that applies to each instrument are defined as follows.

1. **Maximum order volume:** The maximum order quantity in terms of number of contracts.
2. **Maximum order value:** The maximum (strike) notional value of the order quantity calculated as follows.
   - Futures/forwards: Order Quantity x Contract Size x Limit Price
   - Options: Order Quantity x Contract Size x Strike Price

Special considerations for combinations:

- The combination order quantity (number of units bought/sold), is used for the maximum order volume control as opposed to the sum of leg quantities.
- The maximum order value control limits the net sum of leg notional values.

The Trading System uses the stop (trigger) price for the maximum value control on stop orders.

For the maximum value control on market orders in futures, the Trading System uses the last paid price or if no such price available, then yesterday's settlement price is used.

The maximum volume and value limits that apply to different instruments from time to time can be found in Annexe D.

13.2 Circuit Breakers

This section describes how triggering conditions are defined and monitored for the Trading System's different circuit breaker mechanisms.

In case a circuit breaker is triggered, then either continuous trading is interrupted or a scheduled opening or closing auction is extended, as previously described in section 5.3.1.

13.2.1 Circuit Breakers for Index Futures

The circuit breaker triggering conditions are defined and monitored for the designated front-month future for each underlying index as follows:

- On every trading day, the Trading System designates the nearest futures expiry as the front-month future for a given underlying index.
- Starting four trading days before until and including the expiration day of the nearest expiry, the Trading System additionally designates the second nearest expiry as the front-month future.
- The way the front-month future is designated by the Trading System means that during contract rollover periods when liquidity gradually shifts from the nearest to the next expiry, a circuit breaker for a given index underlying can be triggered either on a significant price movement in the nearest, or the second nearest expiry.

13.2.1.1 Volatility Halts

The volatility halt mechanism is active during continuous trading mode and automatically interrupts trading in case a circuit breaker triggering condition is detected.

When attempting to match an incoming order or quote, the Trading System checks each possible match price against the defined triggering conditions, and if a condition is met, the following happens:

- The arriving order is prevented from immediately executing at the triggering price.
- If the arriving order is an IOC or FOK order it is cancelled; otherwise
- The circuit breaker is triggered and interrupts trading; the remaining unfilled portion of the incoming order is entered into the order book where it participates in the subsequent Volatility Auction.
- Any partial executions of the arriving order within the matching event that in sequence took place before the circuit breaker was triggered generate valid trades.

The Trading System notifies the user whose aggressive order triggers a circuit breaker.

The Trading System supports two methods for defining and monitoring the volatility halt triggering conditions, each described in further detail below.

13.2.1.1.1 Sliding Window Method

The sliding window method is used for OMXS30 index futures and during the main Continuous Trading phase. Mini OMXS30 futures are tied to the regular futures contract and do not have their own triggering condition defined.

The triggering condition is defined in terms of a variation against the highest and the lowest execution prices that have taken place in that instrument within a short time window before the possible match price being checked. The window will include any prices from partial executions against the incoming order that have already occurred in previous steps within the matching event.

A circuit breaker condition has been met if a possible match price deviates by the defined variation or more from either the highest, or the lowest of the reference prices within the time window.

13.2.1.1.2 Static/Dynamic Thresholds Method

The static/dynamic thresholds method is used during the main Continuous Trading phase for index futures other than underlying OMXS30. Additionally the method is used for OMXS30 index futures during extended hours trading.

Static and dynamic triggering conditions are defined for each underlying's designated front-month future as follows:

- **Static thresholds:** Defined in terms of an absolute variation against
  - today's most recent auction price; else if no auction price is available, then
  - today's first execution price, else if no execution on today's date, then
  - yesterday's settlement price.
- **Dynamic thresholds:** Defined in terms of an absolute variation against today's most recent execution price. Within a matching event over multiple price levels, all possible match prices are validated against the most recent execution price before the current matching event.

A circuit breaker condition has been met if a possible match price deviates by the respective defined variation or more from either the static, or the dynamic reference price.

Until the first trade of the day has been executed, orders are only checked against the static triggering condition.

In case a circuit breaker is triggered but the subsequent volatility auction or auction extension ends without generating a trade, then the static reference price is cleared out. In such situation the static triggering condition is not checked for subsequent order entries until it is possible to establish a new static reference price, i.e. in case of a new auction trade.

13.2.1.2 Auction Extensions

The auction extension mechanism is active during scheduled Opening and Closing Auctions and automatically extends the auction period in case a circuit breaker triggering condition is detected.

Before uncrossing the auction, the Trading System first checks the current equilibrium price in the order book, i.e. the indicative execution price, against the defined triggering condition. If the condition is met, the auction is prevented from uncrossing and instead an auction extension is triggered.

The triggering condition is defined in terms of a variation against today's most recent execution price or for products other than OMXS30 index futures in case no trade has yet been matched, then against yesterday's settlement price.

13.2.2 Circuit Breakers for Single Stocks

In case the circuit breaker mechanism in Nasdaq Nordic's[11] system used for cash equity trading halts trading in an underlying stock or ETF, the Trading System automatically stops continuous matching in all related derivative instruments and their combinations.

Details on the circuit breaker mechanism and triggering conditions used for equity instruments can be found in the latest version of the Nasdaq Nordic Market Model document for cash equity trading, available at the rules and regulations website for Nasdaq Nordic.

13.3 Order Throttling

The Trading System monitors and limits the number of orders and quotes that can be sent on each order entry port during a sliding time window of one second. Order entry, change and cancel (including order mass-cancel) messages as well as mass quote entry and quote mass-cancel messages are considered. An order mass-cancel, mass quote or quote mass-cancel message increases the counter with the number of individual orders or quotes updated. For the avoidance of doubt, admin messages like required heartbeats are not counted.

If the defined throttle limit is exceeded, the Trading System will automatically reject all subsequent order and quote entries for the remainder of the time window.

If the throttle limit is exceeded on a port, the system will continue to allow the member to cancel open orders and quotes.

Information on the throttle limits that apply to ports from time to time can be found in the Nasdaq Nordic Member Portal.

[11] Nasdaq Nordic refers to, all together, Nasdaq Copenhagen A/S, Nasdaq Helsinki Ltd and Nasdaq Stockholm AB.

13.4 Market Maker Protection

The Market Maker Protection (MMP) mechanism is an optional safeguard available to market makers. When the functionality is enabled, then after each trade against a quote, the Trading System checks the market maker's configured risk limits for that underlying. If a limit is exceeded within a sliding time window defined by the market maker, then the MMP mechanism automatically pulls all quotes in the concerned underlying.

The following sub-sections detail the available risk measures, how the MMP is applied how the different limits can be configured and controlled by a market maker.

13.4.1 Risk Measures & Limits

MMP limits are defined by the market maker per underlying and applies at participant (MPID) level.

Limits can be set as follows for three different risk measures.

- **Cumulative Volume:** Counts the total number of traded option and future/forward contracts. For fills on quotes in combinations, the sum of leg quantities is counted.
- **Delta Volume:** Counts the total volume traded from a long/short underlying perspective. The market maker decides whether to include volumes from futures/forwards in this measure. For fills on quotes in combinations, the net traded quantity per type is counted. E.g. a synthetic underlying will increase the counter but not a strangle.
  - If futures/forwards are included, then absolute value of the sum of
    [(bought futures + bought calls + sold puts) – (sold futures + sold calls + bought puts)]
  - If futures/forwards are excluded, then absolute value of the sum of
    [(bought calls + sold puts) – (sold calls + bought puts)]
- **Vega Volume:** Counts the total volume traded from a long/short volatility perspective as the absolute value of the sum of [(bought calls + bought puts) – (sold calls + sold puts)]. This measure does not include futures/forwards. For fills on quotes in combinations, the net traded quantity per type is counted. E.g. a strangle will increase the counter but not a vertical spread.

Trades against the market maker's quotes happening in continuous matching in the short time window before and including the last transaction, as well as trades against quotes as part of an auction uncrossing, are included in the different risk limit calculations. The market maker defines the length of the time window for each underlying between 100 milliseconds and 30 seconds.

For the avoidance of doubt, fills on a market maker's single orders or off-book trades where the market maker is a party are not counted.

13.4.2 Triggering & Quote Re-Entry

At the end of every transaction in which the market maker's quotes are partially or fully executed, the Trading System checks the different risk measures and triggers MMP as follows.

- MMP is triggered after the processing of an incoming order is complete, meaning that:
  - If a market maker's quote size on the order book is bigger than a defined limit, the whole quote including the excess quantity is available for execution in a single fill against an aggressive order.
  - If an incoming combination order matches against an implied-in price derived from two or more of the market maker's quotes on the legs, then the MMP triggers after all the legs of the combination have been traded even if a limit is exceeded before the last execution.
- Mass quote entries are processed and checked on a quote side basis one after the other. This means that if a quote is filled on entry so that a limit is exceeded, then MMP is immediately triggered and any remaining quotes in the block are prevented from entering the order book. This includes the contra-side of a quote in case it is a bid triggering the MMP.
- If an incoming quote executes against an implied order on entry, then the MMP does not trigger until the combination order has executed its other leg even if the market maker's limit is exceeded already after the first leg.
- In case an incoming quote from market maker "A" executes against a passive quote from market maker "B" so that a limit is exceeded for B, then the MMP triggers and immediate cancellation of B's quotes in the concerned underlying before any remaining quotes in A's submitted block enters the order book.
- All legs of quote in a complex instrument is executed in full before the MMP can trigger. This means that if a market maker quotes a combination so that the corresponding sum of leg quantities is bigger than a defined limit, the whole combination quote including the excess quantity is available for execution in a single fill against an aggressive combination order.

When the MMP is triggered in an underlying for a market maker, the Trading System immediately pulls all quotes in simple and complex instruments from that participant (MPID) in that underlying. Please note that while future/forward volumes is configurable for inclusion in the Delta measure and not included in the Vega calculation, the quote cancellations are always carried out across instrument types for the concerned underlying.

Following an MMP triggering event, new quote entries from the market maker in the concerned underlying are rejected unless a quote re-entry request is sent or the applicable re-entry flag is set on the new quote. The market maker's ability to enter single orders is unaffected by an MMP triggering event.

13.4.3 Configuration Management

A market maker enables the MMP mechanism per underlying by configuring one or more risk limits and the length of the time window.

MMP parameters are configurable via the OUCH protocol for all underlyings the market maker is entitled to quote. The MMP parameters can be updated by the market maker at any time while the Trading System is accessible and are applied instantly. The configured values persist across dates.

After a limit or the time window has been modified, there is no immediate check against the new value(s). The updated configuration is considered at the next transaction.

The MMP mechanism is an optional risk protection and a market maker may apply one or more of the available risk limits, if any, per underlying.

If a limit value is set to 0 (zero) it is inactivated and will not be checked by the Trading System. Similarly, if the time window is set to zero then MMP is disabled entirely for the concerned underlying even if one or more limits are configured.

0 (zero) is the default value of all MMP parameters meaning a market maker actively needs to configure values for all underlings, including newly listed, it wants to enable the mechanism. Upon request, the Exchange can assist and configure the desired values on behalf of a market maker.

13.4.4 Triggering Example

The following first example illustrates how the volume counters update and eventually the MMP is triggered.

A market maker has the following parameters configured for an underlying:

- Time window = 20 sec
- Cumulative limit = 500
- Delta limit = 100 (exclude futures)
- Vega limit = 250

Consider the below sequence of trades against the market maker's quotes in this underlying.

Time (sec)	Instrument	Side	Quote Qty	Trade Qty	Cumulative Counter	Delta Counter	Vega Counter
0	Call	Buy	50	50	50	50	50
5	Put	Buy	50	20	70	30	70
7	Fut	Buy	50	50	120	30	70
10	Call (combo)	Buy	50	25	170	80	70
10	Put (combo)	Sell	50	25			
15	Call (combo)	Buy	50	10	190	80	70
15	Call (combo)	Sell	50	10			
18	Put	Sell	50	50	240	**130**	20

At the 18th second, after the sold put transaction when limits are checked then MMP is triggered as the delta counter now exceeds the defined limit of 100.

Note that if the market maker had configured inclusion of futures in the delta count, then the MMP had been triggered already at time 10.

Example 9: *Market Maker Protection Calculation and Triggering*

13.5 Self-Match Prevention

The Self-Match Prevention (SMP) mechanism is an optional safeguard available to members. It can be used for preventing unintentional self-matching of orders and quotes within the same participant (MPID).

If a participant has the functionality enabled, then in continuous matching before executing an aggressive order or quote with a matching order or quote that rests in the order book, the Trading System first checks if the matching orders/quotes have been entered by the same participant (associated with the same MPID) and if they carry the same SMP ID code. If the two conditions are met, then the orders/quotes are prevented from executing against each other and the passive order or quote is automatically cancelled by the Trading System. The SMP conditions are checked regardless if it is a new or replaced order/quote that results in a possible match.

Specifically for quotes, in case SMP is triggered against one side of a two-sided quote, then the contra-side is also automatically cancelled.

When there are two matching orders/quotes from the same participant that carry the same SMP ID, the cancellation of the resting order or quote only takes place if and when the trade priority order reaches the resting order/quote. This means that within the same price level, the handling of the two orders works differently between time priority and pro-rata matching methods as follows.

- **Time Priority Matching:** The participant's resting order is not cancelled until all orders at the same price ranked ahead in the order book has been executed and the participant's two orders otherwise would execute against each other.
- **Pro-Rata Allocation:** The participant's resting order is eligible for the pro-rata calculation and cancelled assuming it would otherwise receive an allocation, even if the actual result could have been different.

In sequence after the resting order or quote has been cancelled by SMP, the Trading System continues to process the incoming order or quote according to the order instructions. This means that depending on the price it can go on and continue executing aggressively and may sweep through price levels. Any unfilled portion is then cancelled or added in the order book depending on the time-in-force.

The SMP functionality is only supported for orders and quotes in individual instruments and is only active during continuous matching. SMP does not apply in the uncrossing procedure at the end of auctions.

Orders and quotes in combinations are not covered by the SMP mechanism.

The SMP ID allows members further granularity in their control of which orders/quotes within the participant that should be prevented from matching with each other. The member defines the usage of the values and users flag orders accordingly.

A user cannot specify an SMP ID on mass quotes. Instead, the Trading System treats all quotes as if they have a zero value. This means that for a participant that has SMP enabled, any single order with a zero value SMP ID will be prevented from matching against that participant's quotes.

Members may request the SMP mechanism to be activated for a given MPID by completing the required form via the Member Portal.

Triggering Examples

The following example illustrates how the SMP is checked and triggered in a price/time priority book.

Consider the below bid side of a given order book where MPID "AAA" has SMP active.

In this situation, AAA enters a sell order of 20 at market with SMP ID = "1".

Ord ID	MPID	SMP ID	Qty	Price
T1	AAA	2	10	10.00
T2	AAA	1	10	10.00
T3	AAA	5	10	10.00
T4	AAA	1	10	10.00
T5	CCC		10	10.00
T6	DDD		10	10.00
T7	AAA	1	10	9.90

Result: Order T2 is cancelled by the SMP mechanism and the incoming order is fully executed against T1 and T3. As the trade priority at this price level do not reach T4, that order remains on the book.

Example 10: *SMP with Price/Time Priority Matching*

The following second example illustrates how the SMP is checked and triggered in a similar situation in price/pro-rata allocation book.

Consider the bid side and a similar state of a given order book as in the previous example but with different quantities. MPID "AAA" has SMP active.

In this situation, AAA enters a sell order of 20 at market with SMP ID = "1".

Ord ID	MPID	SMP ID	Qty	Price
T1	AAA	2	5	10.00
T2	AAA	1	10	10.00
T3	AAA	5	1	10.00
T4	AAA	1	2	10.00
T5	CCC		100	10.00
T6	DDD		75	10.00
T8	AAA	1	10	9.90

Result: Order T2 and T4 are cancelled by SMP as they are eligible for the pro-rata calculation at the best price. The incoming order is fully executed against T5 (12) and T6 (8).

Please note that even though the pro-rata calculation had not allocated any volume to T2 and T4 due to their relatively small sizes, they are cancelled before the allocation takes place.

Example 11: *SMP with Pro-Rata Matching*

13.6 Kill Functionality

13.6.1 Member Kill Switch

The kill switch mechanism is an optional feature that can be initiated by members via OUCH or FIX.

If triggered, the Trading System will mass cancel all open orders and quotes in all instruments across connections for a participant (MPID) as requested by the member. Additionally, the functionality will disable the ability to enter new orders and quotes for the concerned participant.

The Trading System will send a notification to the participant when a kill switch request has been processed.

After a kill switch has been triggered, the concerned participant remains unable to enter new orders or quotes until Exchange staff has enabled re-entry manually. Request to enable re-entry must be submitted to the Exchange via phone. If order and quote entry is not manually re-enabled by the Exchange on the same day as the kill switch request, the participant is automatically re-enabled on the next day before trading starts.

Members may request the Exchange to configure the special entitlement on specific OUCH and FIX ports to submit a kill switch request for a participant. Any kill switch request submitted on an unauthorised port will be rejected.

13.6.2 Cancellations by the Exchange

Upon request, the Exchange can on behalf of a member cancel open orders and quotes in case the member is technically unable to delete its own orders and/or quotes.

Members submit such cancellation request by phone or e-mail to the Exchange and provide details on the relevant MPID(s) and Trader ID(s) and for which instrument(s) orders and/or quotes are to be cancelled.

The Exchange execute cancellation requests manually on a best-effort basis in accordance with the conditions provided by a member. Order cancellation requests are processed during trading hours.

13.7 Cancel on Disconnect

The Cancel on Disconnect (COD) mechanism is an optional safeguard available to members. If enabled the functionality automatically cancels orders and quotes in case a port is disconnected.

The functionality works differently for single orders and quotes as detailed below.

13.7.1 COD for Single Orders

For single orders, members can request the Exchange to configure the functionality per FIX/OUCH port. If active, orders will be cancelled in case of an unintentional disconnect.

There are three configuration options available that determines how orders on the concerned port are handled in case the connection is lost as detailed below.

1. **Keep all:** The functionality is disabled.
2. **Cancel day:** Open day orders are cancelled.
3. **Cancel all:** All open orders are cancelled.

13.7.2 COD for Quotes

OUCH ports are by default configured to automatically cancel all quotes in case of a disconnect, regardless if it is an unintentional loss of connection or a voluntary logout.

All underlyings that have been quoted by the market maker on the affected port since the start of the session, will be cancelled from all other ports of that market maker.

E.g. if a participant (MPID) uses port “A” and “B” to submit quotes for the same underlying, then a disconnect on port A will result in a quote cancellation on both ports A and B.

13.8 Pre-Trade Risk Management (User-Defined)

The Pre-Trade Risk Management (“PRM”) service consists of a set of optional user-defined risk protections that are available to members as follows:

- GCMs may use the service to control the trading activity of their NCMs.
- Exchange Members offering SA and DMA may use the service to control the trading activity of clients.
- Exchange Members may use the service to control all or parts of their own trading activity.

The available risk protections can be defined for individual or groups of users (Trader IDs) using “PRM Groups”.

A PRM Group is created on request by the member and is associated with one MPID. One individual, a group of or all of the users of that participant can then be associated with the PRM Group.

It is possible to create multiple PRM Groups per participant, but one user can only belong to one PRM Group.

E.g. a general clearing member that wish to define limits for its non-clearing member (NCM) clients may create one PRM Group for each NCM’s MPID and associate all users (wildcard) of each NCM client with the respective account. A direct clearing member may use the same approach for sponsored access clients and their designated MPIDs.

On the other hand, an Exchange Member that wish to set different limits for different trading desks within its own firm, may create several PRM Groups and associate them with the relevant users.

The available risk protections include both pre-trade and post-trade controls that can be combined in a flexible way to automatically manage risk on order entry.

All PRM checks are active in every trading phase throughout the trading day.

13.8.1 Pre-Trade Controls

Pre-trade controls can be defined to be carried out automatically by the Trading System on order entry for users belonging to a PRM Group as follows:

- **PRM Group status check:** Rejects an incoming order in case the associated PRM Group is blocked from order entry in the concerned instrument. A PRM Group is blocked automatically by the Trading System either for a particular product in case a post-trade control has been triggered, or for all instruments in case a monitored FIX drop port has been disconnected; or manually on request by the controlling party.

- **Restricted symbols check:** Rejects an incoming order in case the associated PRM Group does not have any risk limits defined for pre- or post-trade controls covering the concerned Instrument.
- **Max individual and combination order volume checks:** Rejects an incoming order in case it exceeds the user-defined maximum order volume for individual instruments or combinations, respectively. This check is carried out in the same way as the corresponding Exchange-defined control (see section 13.1.3). It allows members to apply a lower value than the upper limit defined by the Exchange.
- **Max individual and combination order value checks:** Rejects an incoming order in case it exceeds the user-defined maximum order value for individual instruments or combinations, respectively. This check is carried out in the same way as the corresponding Exchange-defined control (see section 13.1.3). It allows members to apply a lower value than the upper limit defined by the Exchange.
- **Max trade report volume check:** Rejects an incoming trade report in case it exceeds the user-defined maximum volume. This check is carried out in the same way as the corresponding Exchange-defined control (see section 10.4). It allows members to apply a lower value than the upper limit defined by the Exchange.

Reject reasons will apply according to OUCH and FIX protocol specifications.

13.8.1.1 Considerations

- For combination orders, the net order quantity and order value is checked against the defined limits.
- For multi-leg trade reports, the max trade report check is carried out per leg and will reject the whole report in case any of the reported legs exceed the defined limit.
- The max order volume and value limits apply per quote and not for the sum of volumes and values in a quote block submitted in a single transmission.

13.8.2 Post-Trade Controls

Post-trade controls of different user-defined risk limits are available in the Trading System based on the internal real-time stream of data. As soon as an order entered in the order book or a trade that is executed triggers one of the defined post-trade controls the relevant PRM Group is immediately blocked for the concerned product.

The controlling party may use all or define and combine a subset of the available controls as follows.

- **Accumulated Volume Limits:** Several different measures of open order and/or trade volumes for which limits can be set are available to members. Definitions of the different volume counters are found in the table below.
- **Order Rate Limit:** This control is similar to the related Exchange-defined throttle limit, but counts the orders per second per PRM Group. Meaning all order and quote updates across instruments from users associated with the same PRM Group are measured against the same user-defined limit. Note that the Exchange's throttle limit per port takes precedence over this optional check. A member's order flow may be restricted on a given port due to exceeding the port rate limit although the PRM Group limit has not been exceeded.
- **Repeated Orders Limit:** Each instrument has one counter that is increased each time a new order entered by a user of the PRM Group on that instrument is a repeated order. A repeated order is defined as an order on the same instrument, side and with the same price and quantity as the previous one. Similarly, a repeated quote has the same values on both sides as the previous. The counter for an instrument is reset to 0 (zero) as soon as a new order is placed on that instrument with a different side, price or volume.

13.8.2.1 Accumulated Volume Measures

Order volume in the following measures includes volume from all orders and quotes accepted by the Trading System, including On Open/On Close and stop orders pending activation.

Traded volume in the following measures includes volume executed in the order book and excludes off-book volume from trade reports.

The total of leg volumes from a combination match is counted at the end of a transaction. E.g. a bought straddle increases the open order volume and open vega measures, but does not increase the open delta measure.

Volume Measure	Definition
Open Order Volume	Total volume of open buy and sell orders.
Open Delta	Open order volume from an underlying perspective. Counts the total net volume of open buy and sell orders as the absolute sum of: $(Fut_{Buy} + Call_{Buy} + Put_{Sell}) – (Fut_{Sell} + Call_{Sell} + Put_{Buy})$
Open Vega	Open order volume from a volatility perspective. Counts the total net volume of open buy and sell orders as the absolute sum of: $(Call_{Buy} + Put_{Buy}) – (Call_{Sell} + Put_{Sell})$ This limit is only applicable to option products.
Traded Volume	Counts the total number of contracts traded.
Traded Delta	Traded volume from an underlying perspective. Counts the total net volume traded as the absolute sum of: $(Fut_{Bought} + Call_{Bought} + Put_{Sold}) – (Fut_{Sold} + Call_{Sold} + Put_{Bought})$
Traded Vega	Traded volume from a volatility perspective. Counts the total net volume traded as the absolute sum of: $(Call_{Bought} + Put_{Bought}) – (Call_{Sold} + Put_{Sold})$ This limit is only applicable to option products.
Total Volume	Order Volume + Traded Volume
Total Delta	Open Delta + Traded Delta
Total Vega	Open Vega + Traded Vega

Table 27: *PRM Volume Measures*

For the purpose of the defined risk measures in the above table,

"Fut" means futures and forwards, "Call" means call options and "Put" means put options.

"Fut_{Buy}" / "Fut_{Sell}" means volume of buy and sell orders in Fut, respectively, and similarly for Call and Put.

"Fut_{Bought}" / "Fut_{Sold}" means bought and sold volume in Fut, respectively, and similarly for Call and Put.

13.8.2.2 Post-Trade Control Triggering Action

When a post-trade control is triggered, users associated with the PRM Group are blocked from entering new or changing existing orders or quotes in all instruments that the exceeded limit applies to. On Open/On Close orders and stop orders pending activation are counted against the different risk limits and can still be executed following a block.

Associated users may still cancel orders and quotes in the blocked instruments as well as enter orders and quotes in instruments for which the block does not apply.

When a post-trade control is triggered, the PRM Group remains blocked even if the member reduces that counter below the defined limit, either by cancelling open orders or from trading offsetting positions. To reactivate a PRM Group for trading, the member needs to submit a request to unblock the group, either via the OUCH protocol or by contacting the Exchange by phone. Note that if reactivating a PRM Group when an accumulated counter still exceeds its limit, the group may be blocked again with the next transaction.

Please note that if no action is taken when a post-trade control is triggered for a PRM Group, on the next trading day the accumulated counters are reset and the PRM Group will be unblocked to allow order and quote entry.

PRM is not designed to cancel open orders and quotes once a post-trade control has been triggered why it will not automatically prevent further executions of open orders and quotes.

An incoming order or quote that triggers a post-trade control will always be accepted by the Trading System and will be the signal for the rejection of subsequent orders and quotes. For this reason, controlling parties are advised to define a maximum order volume to limit how much a post-trade volume limit can be exceeded from incoming orders.

13.8.3 User Interface & Administration

13.8.3.1 Configuration Management

The different risk protections are optional and by default disabled.

A member enables one or several risk protections by creating a PRM Group, associating the relevant users and configuring one or more pre-trade and/or post-trade controls.

The Exchange creates PRM Groups and associates them with users on request. A PRM Group can be configured to cover all Trader IDs (wildcard), or a list of Trader IDs.

The max order volume, max order value and max trade report size limits are configured for a PRM Group per product. The max order volume and value limits are configured separately for individual instruments and combinations.

The accumulated volume limits for the post-trade controls are configured and measured for a PRM Group per product.

The order rate limit is configured for a PRM Group and counts the order and quote messages across all instruments.

The repeated orders limit is configured for a PRM Group and counts the number of repeated orders for each instrument.

PRM parameters are configurable by a member using the OUCH protocol. The parameters can be updated at any time while the Trading System is accessible and are applied instantly. The configured values persist across dates.

After a risk limit has been modified, there is no immediate check against the new value(s). The updated configuration is considered at the next transaction.

All the risk protections are optional, and the member may apply one or more of the available risk limits per PRM Group.

If a limit value is set to 0 (zero), it is inactivated and not checked by the Trading System.

Upon request the Exchange can assist and on behalf of a member create PRM Groups and configure the desired limits.

ⓘ ***Note:*** *PRM checks are not carried out for orders with a Trader ID that is not associated with a PRM Group. This is the default setting.*

13.8.3.2 FIX Drop Cancel on Disconnect

A member can identify a FIX drop copy port per PRM Group that will be monitored by the Trading System. If the drop port lose connection it will automatically trigger an instrument-wide block for the associated PRM Groups and additionally an automatic mass-cancel of open orders and quotes from all the users associated with the relevant groups. The drop port can be connected to multiple PRM Groups.

E.g. a member can connect a drop port used for risk monitoring to one or several PRM Groups created for its SA clients, so that if the sponsoring member loses connectivity – trading is restricted for its clients.

The detection of loss of connectivity works as detailed in section 13.7.

> ⓘ ***Note:*** *If a FIX client never connects to a FIX drop port during a day, this risk protection will never act on the related PRM Groups and therefore, will take no action to cancel open orders or to prevent order entry.*

13.8.3.3 Block/Unblock of PRM Group

A member can submit a request to block/unblock a PRM Group via the OUCH protocol or by contacting the Exchange.

When a PRM Group is blocked manually, the order and quote management restrictions for the associated users applies to all instruments regardless of whether limits have been defined or not.

13.8.3.4 Interface Notifications

The OUCH protocol includes a PRM related notification message that can be optionally sent in case a post-trade control is triggered with information on which limit that has been exceeded and for which PRM Group.

13.8.3.5 Email Notifications

The controlling party can request the Exchange to activate automatic email notifications to be sent to a list of pre-defined recipients connected to a PRM Group in the following cases:

- A warning in case any of the post-trade volume counters reaches 80% of the defined limit
- A warning in case the order rate counter for any port reaches 80% of the defined limit
- An alert in case any of the post-trade volume controls is triggered
- An alert in case the order rate limit is exceeded on a port
- An alert if a repeated order generation condition is detected.

The administration of email addresses (add/remove/update) is performed only by the Exchange on request from the controlling party.

The email notification service is provided on a best effort basis and the Exchange makes no guarantee to the delivery.

> **Examples subjects of PRM email notifications:**
>
> - Nasdaq PRM: Accumulated daily limit WARNING for PRM Group ABC123 with reason 80% Open Sell Orders Volume, for Product OERICB

- Nasdaq PRM: Accumulated daily limit BREACH for PRM Group ABC123 with reason Over Open Sell Orders Volume, for Product OERICB
- Nasdaq PRM: Repeated order BREACH on instrument OMXS301C for PRM Group ABC123

14 Order-to-Trade Ratio

The Exchange calculates and monitors the order-to-trade ratio (the "OTR") of each member and participant category (non-MM and MM) and every product, in number and volume terms respectively.

As set out in the Exchange Rules, members may not exceed the relevant maximum ratios that apply per product as determined by the Exchange from time to time. The maximum OTR for a particular product is deemed to have been exceeded by a member during a trading day if the trading activity of that member and participant category, during trading hours, exceeds either or both of the two ratios.

The methodology for calculating the OTR is detailed below. The relevant maximum ratios that apply from time to time are found in Annexe D.

Daily OTR levels are made available to members in a report which as accessed via the Nasdaq Member Portal.

14.1 OTR Calculation Methodology

Formulas for Non-MM Category

$$OTR_{Nbr} = \frac{\sum Orders}{\sum Trades} - 1$$

$$OTR_{Vol} = \frac{\sum Order\ Volume}{\sum Trade\ Volume} - 1$$

Where,

- With respect to the numerator all single orders not having order capacity set to market making are counted in accordance with the method described below.
- With respect to the denominator, all trades executed in the order book not having trading capacity set to market making are counted. Where no trades have taken place, the ratio is equal to the numerator.

Formulas for MM Category

$$MM_OTR_{Nbr} = \frac{\sum MM\ Orders/Quotes}{\sum MM\ Trades} - 1$$

$$MM_OTR_{Vol} = \frac{\sum MM\ Order/Quote\ Volume}{\sum MM\ Trade\ Volume} - 1$$

Where,

- With respect to the numerator and futures contracts, all single orders and mass quotes having order capacity set to market making are counted in accordance with the method described below.
- With respect to the numerator and option contracts, all mass quotes are counted in accordance with the method described below.
- With respect to the denominator and futures contracts, all trades executed in the order book having trading capacity set to market making are counted.

- With respect to the denominator and option contracts, all trades executed from mass quotes are counted.
- Where no trades have taken place, the ratio is equal to the numerator.

Order Counting Method

All explicit order/quote entries, changes and cancellations sent by the member throughout the trading day are counted depending on the order type as detailed in the table below. For the avoidance of doubt this means that the generation of implied orders and the triggering of stop orders are not counted. Similarly, automatic cancellations as the result of cancel on disconnect or market maker protection functionality or in connection to a trading halt or suspension are not counted.

Type of order	Count
Limit – enter or cancel	1
Limit – change	2 (Counted as cancel/replace)
Stop – enter	1 (Only counted when entered, not when triggered)
Immediate (FOK, IOC)	1 (If whole order is filled) 2 (If whole or part of order is cancelled)
Reserve (iceberg)	1 (Same as limit)
Market-to-limit – enter	1 (Only counted when entered, not conversion to limit if only part is filled)
Quote – add or delete	Per symbol, 2 (1 for the bid, 1 for the ask)
Re-Quote	Per symbol, 4 (cancel/replace for each side)
On-open/close	1 (Only counted when entered, not when triggered)
Combination order – enter or cancel	1 (Only count explicit order)
Combination order – modify	2 (Explicit cancel/replace)

Table 28: *OTR Counting Method by Order Type*

14.2 Example Calculation

Series	Event	ID	Size	Leaves Volume	OrderVol Count	OrderNbr Count	TradeVol Count	TradeNbr Count
OMXS30 Dec17 1700 Calls	Enter Order	1	50	50	50	1	0	0
OMXS30 Dec17 1640 Calls	Enter Order	2	75	75	75	1	0	0
OMXS30 Dec17 1700 Calls	Cancel Order	1	50	0	50	1	0	0
OMXS30 Dec17 1640 Calls	Partial Fill (Passive)	2	25	50	0	0	25	1
OMXS30 Dec17 1640 Calls	Change Order	2	75	75	125 (50 delete + 75 add)	1+1	0	0
OMXS30 Mar18 1500 Calls	Enter & Fill Order	3	100	0	100	1	100	1

Sub-Class	∑Orders	∑Trades	OTRNbr	∑Order Volume	∑Trade Volume	OTRVol
OMXS30 Index Options	6	2	2	400	125	2.2