

CHI-X EUROPE EXCHANGE GUIDE

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Normal Market Hours:	Chi-X Order books: 08.00 until 16.30 UK time Order Routing: 08.00 until 16.30 UK time Chi-X ccCFD Service: 07.30 until 17.30 UK time Chi-X TDM Service: 06.30 until 17.30 UK time
Currencies Quoted:	GBP, EUR, NOK, DKK, SEK, CHF, USD

Overview of Market Structure:

Chi-X Europe Ltd (Chi-X) is an FSA authorised Multilateral Trading Facility (MTF) passported across the European Economic Area (EEA). It is also recognised as a Foreign Exchange by FINMA, the Financial Regulatory Authority in Switzerland.

Order Books

Two order books are available: a Central Limit Displayed Order Book ("Visible Book") and a Non-Displayed Order Book ("Chi-Delta") for the trading of reference pegged non-displayed orders.

Order Routing (Chi-Vision)

The Chi-Vision software offers routing between the two Chi-X order books and third party liquidity providers. The user is able to select to which liquidity providers it wishes to access.

ccCFD Service

This service allows users to enter orders for centrally cleared CFDs (ccCFDs) in single equities. The user provides the equity hedge and enters the orders into the Service. Chi-X transmits the messages to LCH.Clearnet, who identify an Allocating Co-financing Manager (ACM), to act as counterparty to both the equity hedge trade and the ccCFD trade. The ccCFD position is written in favour of the end user's Clearing Member. This results in an equity trade and ccCFD trade, both of which are brought onto the Chi-X MTF and under its Rules. This Service also supports ccCFD vs ccCFD orders.

Trade Data Monitor (TDM)

This service allows users to report trades done completely OTC and hence comply with their trade reporting obligations.

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Trading Schedule

Period	Times (UK)	Action
Technical Connectivity	06:00	Participant system connectivity can occur. No order entry, modification or cancellation is permitted.
Trade Data Monitor Service Opens	06:30	Participants can contribute off-exchange trades to Chi-X for trade reporting.
ccCFD Service Opens	07:30	Orders can be entered into the ccCFD Service.
Continuous Trading Period	08.00 until 16.30	Orders can be entered, modified and deleted on the Chi-X order books. Trades occur continuously as orders match in accordance with Chi-X normal trading behaviour.
Post Trading Administration Period	16:30 until 17:50	Orders on the Chi-X order books can only be cancelled during this period. If required, Chi-X can send participants confirmation of trade cancellations.
ccCFD Service closes	17.30	Any orders received by the ccCFD Service after this time will be rejected.
Trade Data Monitor Service Closes	17:30	Any trades contributed the Trade Data Monitor Service will be rejected. The participant will receive an out of hours reject message.
Technical Connectivity Ends	17:50	System closed, any untraded orders will be cancelled back to participants.

Market Data

Market Data	Via Chi-X data feed	On Thomson Reuters/Bloomberg & other third party vendors
Bid/Ask Data	Yes	Yes
Market Depth	Yes	Yes
VWAP and Turnover	No	Yes

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Stock Universe

Order Books

A large number of Equities, Exchange Traded Funds (ETFs), and International Depositary Receipts (IDRs) can be traded on the Chi-X order books. The complete list of all available stocks is available here:

<http://www.chi-xeurope.com/stocks-and-symbols/entire-chi-x-stock-list.asp>

Order book trades are centrally cleared using EMCF as the central counterparty.

Chi-Vision

Chi-Vision stocks generally match those that can be traded on the order books, however, the following market segments are currently completely excluded: Spain, Ireland and IDRs.

Chi-Vision trades are also cleared through EMCF.

ccCFD Service

The equities and associated ccCFDs are cleared through LCH.Clearnet.

The ccCFD Service is currently available for FTSE 100 Securities. Further securities may be added to this service at a later date.

Tick Sizes

Displayed Order Book and Chi-Vision

Chi-X tick sizes vary. A complete list of all tick sizes is available on the Chi-X website here:

<http://www.chi-xeurope.com/tick-sizes/uk.asp>

Chi-Delta

Non-standard tick prices are supported for order submission. However, executions will only occur at a level that matches the tick increment or half tick increment for the stock. See section on Chi-Delta below for detail of matching behaviour.

ccCFD Service and Trade Data Monitor

Tick sizes are not applicable – non-standard tick sizes can be reported.

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Instruments Types Supported

Chi-X supports the following instrument types:

Equities: Equities make up the majority of instruments supported by Chi-X. Chi-X has divided equities into different segments by country. Participants are required to obtain a Statement of Authority which covers each market segment they wish to access. The majority of these are MiFID securities and must comply with Large-In-Scale restrictions, which limits the size of hidden orders that can be entered into the Chi-X visible order book. Shares which are not MiFID securities are not subject to Large-In-Scale restrictions.

ETFs/ETCs: Exchange Traded Funds (ETFs) and Exchange Traded Commodities (ETCs) are equity like instruments which provide economic exposure to a variety of indices and market segments or commodities. These instruments are divided into market segments by country in the same way as equities. Large-in-scale restrictions do not apply to these instruments. Full details of ETFs and ETCs on Chi-X are available here:

<http://www.chi-xeurope.com/markets-traded/etfs-and-etcs.asp>

IDRs: International Depositary Receipts (IDRs) are equity like instruments which represent ownership of shares of a company listed in another market. The underlying equity may be listed in countries such as Russia, India and Egypt. They are generally priced in USD, EUR or GBP, rather than the currency of the underlying equity. IDRs have a dedicated market segment which is independent from the country specific market segments which are used by equities, ETFs and ETCs.

ccCFDs: Centrally cleared Contracts For Difference (ccCFDs) are a financial derivative agreement between the buyer and seller to exchange the difference between the value of the contract when it is opened and when it is closed by reference to the contract's underlying prices. These products can only be accessed through the ccCFD Service. Full details of ccCFDs can be found here:

<http://www.chi-xeurope.com/products/centrally-cleared-cfds.asp>

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Trade Reporting

Visible Order Book and Chi-Delta Order Book

All trades that occur in the Chi-X order books are reported immediately.

Chi-Vision and ccCFD Service

Trades that are brought on MTF are reported immediately (note: this includes CFD trades).

Trade Data Monitor

Trades reported to the Chi-X TDM are reported immediately, unless the submitter of the trade report requests a delay. The user must request the length of delay in the message to Chi-X. Chi-X will verify this, and will honour the request of the delay if the trade meets the criteria for that length of delay. If the trade is not entitled to such a length of a delay, Chi-X will publish the trade immediately.

Price Range Checking

For each order a tolerance check is made against the last traded price of the stock on the market of listing. Orders that breach the price checks will be automatically rejected. The tolerance check is only applied where the order is priced on the aggressive side of the spread, i.e. the tolerance check for buys is only applied when the price is higher than the last traded price on the market of listing and the tolerance check for sells is only applied when the price is below the last traded price on the market of listing.

The tolerance levels are standard across all stocks, varying according to size of the last traded price on the market of listing as follows:

Chi-X MTF Members	20% (non-configurable)
Sponsored Clients	Tolerance level set by the Sponsoring Participant (maximum 20%)
ccCFD Service	50%. This limit can be waived for a specific order at user request.

Note: Erroneous trade rules (Guidance Note 1) continue to apply. In the event that a trade occurs at an erroneous price, it may be cancelled at Chi-X's sole discretion.

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Round Lot Sizes

Order Books	Based on the local market
Chi-Vision	Based on the local market
ccCFD Service	Not applicable
Trade Data Monitor	Not applicable

Clearing and Settlement:

All participants who access the Chi-X Order books and Chi-Vision require a clearing authority for securities.

An additional, separate clearing authority is required to access the ccCFD Service.

Settlement Cycle	Period
Cash equities, including cash equity hedge of ccCFD Service trades	T+3 for all markets except Germany, which is T+2
ccCFDs	No settlement, financing commences on T+3 using the spread from T+0

Order Books

Order Matching Priority

Visible Book	Orders are matched according to price, visibility, time.
Chi-Delta	<p>Orders are matched according to time priority unless minimum quantity is set.</p> <p>Minimum quantity orders will not execute if sufficient volume is not available to meet the minimum quantity of that order. As a result, other orders in this stock may execute prior to the minimum quantity order, even if they were received later.</p> <p>An order received in the non-displayed book (whether minimum quantity is set or not) that matches or exceeds the minimum quantity of an opposing order will be prioritised for matching. This will mean the lowest number of executions possible for both those orders.</p>

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Time in Force Options

The following time in force values are available for order types across both order books:

Day Orders:	Orders are valid for the entire day
Good till date:	Used for setting intraday expiration times (orders are only valid on the day that they are received)
Execute and Eliminate (IOC):	An order with a specified size and, optionally, a specified limit price which executes, in full or in part. Any unexecuted portion of this order will be automatically cancelled.
Fill or Kill Order:	An order with a specified size and, optionally, a specified limit price that executes in full against eligible orders or is automatically cancelled in its entirety.

Note: all orders are automatically cancelled at the end of each trading day, in both books, regardless of order type, or time in force.

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Central Limit Order Book (Visible Book)

Supported Instruction behaviour in the Central Limit Order Book:

Visible Order Types

Limit Order:	An order with a specified price and size.
Market Peg:	An order that pegs to the best price on the opposite side of the order book on the market of listing. The order may be priced or unpriced, and if priced the order will peg up or down to the specified limit.
Mid Peg Order:	An order that pegs to the mid-price on the market of listing. The order may be priced or unpriced, and, if priced, the order will peg up or down to the specified limit.
Primary Peg Order:	An order that pegs to the best price on the same side as the market of listing. The order may be priced or unpriced, and if priced the order will peg up or down to the specified limit.
Iceberg Order:	An order with a specified price and size. A portion of this order (the peak), determined by the Trading Participant, is displayed. The peak must be a multiple of the RLS. The remainder of this order remains non-displayed. The visible portion has price and time priority over other orders. The non-displayed portion has price priority over all orders and time priority over other hidden orders.

The above order types can be supported for any order types.

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Non-Displayed Orders in the Central Limit Order Book (Visible Book)

Non-displayed orders must meet large in scale requirements as defined by MiFID in order to be directed to the Central Limit Order Book (Note: some securities are exempted from this requirement, and are listed on the following page). Orders that do not meet the Large in Scale size can only be directed to the Non-Displayed Order Book. Large in scale orders are defined in Table 2 of Annex 2 of the MiFID Implementing Regulation as follows (all figures in EUR):

Average Daily Turnover (ADT)	ADT < 500,000	500,000 ≤ ADT < 1,000,000	1,000,000 ≤ ADT < 25,000,000	25,000,000 ≤ ADT < 50,000,000	ADT ≥ 50,000,000
Minimum size of order qualifying as large in scale	50,000	100,000	250,000	400,000	500,000

CESR publishes a list which details the ADT for all stocks that must comply with this requirement. This can be accessed at this web link:

<http://mifiddatabase.esma.europa.eu/>

Non-Displayed Order Types in the Central Limit Order Book (Visible Book)

Note: All hidden orders are visible only to Chi-X and the participant who submitted the order.

Order Behaviour

A hidden order takes price priority over all other orders on the visible book. It has time priority over other hidden orders, including non-displayed portion of iceberg orders, only.

Order Types

- Hidden Limit Order:** A hidden order with a specified price and size.
- Hidden Market Peg Order:** A hidden order that pegs to the best price on the opposite side of the order book on the market of listing. The order may be priced or unpriced, and if priced the order will peg up or down to the specified limit.
- Hidden Mid Peg Order:** A hidden order that pegs to the mid-price on the market of listing. The order may be priced or unpriced, and, if priced, the order will peg up or down to the specified limit.
- Hidden Primary Peg Order:** A hidden order that pegs to the best bid or offer on the market of listing. The order may be priced or unpriced, and if priced the order will peg up or down to the specified limit.

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Disapplication of Large In Scale Requirements

Large in scale requirements are not applicable to ETFs, ETCs, IDRs or to the following equities:

Name	ISIN	UMTF Code
ACTELION HOLDING N ORD	CH0010532478	ATLNz
BARRY CALLEBAUT AG	CH0009002962	BARNz
BASILEA PHARMACEUTICA	CH0011432447	BSLNz
EFG INTERNATIONAL	CH0022268228	EFGNz
GALENICA AG	CH0015536466	GALNz
GAM HOLDING LTD	CH0102659627	GAMz
GEBERIT AG	CH0030170408	GEBNz
GEORG FISCHER AG	CH0001752309	FINz
GIVAUDAN SA	CH0010645932	GIVNz
HELVETIA HOLDING AG	CH0012271687	HELNz
JULIUS BAER GROUP	CH0102484968	BEARz
KUDELSKI SA	CH0012268360	KUDz
KUEHNE & NAGEL	CH0025238863	KNINz
LINDT & SPRUENGLI AG	CH0010570759	LISNz
LINDT & SPRUENGLI AG	CH0010570767	LISPz
LOGITECH INTERNATIONAL SA	CH0025751329	LOGNz
LONZA GROUP AG	CH0013841017	LONNz
OC OERLIKON CORP AG	CH0000816824	OERLz
PANALPINA WELTTRANSPORT HOLDING AG	CH0002168083	PWTNz
PARGESA HOLDING AG	CH0021783391	PARGz
PETROPLUS HOLDINGS AG	CH0027752242	PPHNz
PSP SWISS PROPERTY AG	CH0018294154	PSPNz
ROCHE HOLDING G PAR	CH0012032048	ROGz
SCHINDLER HOLDING AG	CH0024638196	SCHPz
SGS SA	CH0002497458	SGSNz
SIKA AG	CH0000587979	SIKz
SONOVA HOLDING AG	CH0012549785	SOONz
STRAUMANN HOLDING AG	CH0012280076	STMNz
SULZER AG	CH0038388911	SUNz
SWATCH GROUP AG/THE	CH0012255144	UHRNz
SWATCH GROUP ORD	CH0012255151	UHRz
SYNTHESE ORD	US87162M4096	SYSTz
TEMENOS GROUP AG	CH0012453913	TEMNz
TRANSOCEAN LTD	CH0048265513	RIGNz
VALIANT HOLDING	CH0014786500	VATNz
WEATHERFORD INTERNATIONAL	CH0038838394	WFTz
GENERAL MOTORS	US37045V1008	8GMd
APPLE ORD	US0378331005	APCd
CITIGROUP ORD	US1729671016	TRVd
CISCO SYSTEMS ORD	US17275R1023	CISd
AMAZON COM ORD	US0231351067	AMZd

(continued overleaf)

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Disapplication of Large In Scale Requirements (cont.)

Name	ISIN	UMTF Code
INTEL ORD	US4581401001	INLd
MICROSOFT CP ORD	US5949181045	MSFd
GOOGLE A ORD	US38259P5089	GGQ1d
ALCOA ORD	US0138171014	ALUd

NB: Hidden orders for ETFs, IDRs and selected Swiss stocks of any size will be entered into Chi-X Central Limit Order Book, unless they have a minimum quantity, in which case, they will be sent to Chi-Delta.

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Chi-Delta

Chi-Delta is a stand-alone "Non-Displayed Book" that has been designed to comply with MIFID's reference price pre-trade transparency waiver for non-displayed orders. It is a continuously matching order book that supports matching at the mid-peg reference price. The current reference price is mid-price of the Best Bid and Offer price on the market of listing the security in question.

Chi-Delta also supports minimum quantity orders.

Trading Hours

The trading hours for each stock on Chi-Delta are the same as the continuous trading period on the market of listing for that stock.

Order Matching Behaviour

All orders in Chi-Delta are matched at the mid-peg price. If this peg type is not applied by the Trading Participant then this peg type will automatically be applied by Chi-X.

Mid-point matching can result in execution prices being at half tick levels if the market of listing quote is an odd number of ticks wide.

In the event that a stock moves out of continuous trading intraday on the market of listing - for example, it enters an intra-day auction - new orders are accepted, but put into a held status. Existing orders are removed from the matching algorithm and put into a held status. Upon resumption of continuous trading on the market of listing, orders will be reinstated, and all orders will be removed from the held status. Order time priority will be retained.

Minimum Quantity Behaviour

Chi-Delta supports the Minimum Quantity order attribute and is communicated by Participants via the use of FIX Tag 110 (MinQty). A value greater than zero communicated in MinQty constrains the quantity that can be matched against the order (in one or more consecutive executions) to the value specified. This behaviour persists for the life of the order with the only exception being where residual order quantity is less than the MinQty of the order. In this scenario MinQty is reset to the residual amount.

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Non-Displayed Order Book (Chi-Delta): Supported Instruction behaviour

Chi-Delta is referenced to the mid-price of the market of listing on a per stock basis. Trades on Chi-Delta will always occur at the mid-price regardless of the order type.

Hidden Order: A non-displayed order with a specified size but no limit price. Any unexecuted portion of the order will rest on the Chi-Delta order book.

Hidden Mid Peg Order: A non-displayed order with a specified size and limit price. Any unexecuted portion of the order will rest on the Chi-Delta order book.

Hidden IOC Order: A non-displayed order with a specified size which executes in full or in part. Any unexecuted portion of this order will be automatically cancelled.

Hidden Fill or Kill Order: A non-displayed order with a specified size that executes in full or is automatically cancelled in its entirety.

Post Trade Transparency

Post trade transparency is achieved by the real time dissemination of Chi-Delta trades on the consolidated Chi-X market data feed. The existing message type for non-displayed executions is also used for Chi-Delta executions. Further information on how vendors and participants can differentiate Chi-Delta executions from LIS non-displayed executions is available on request.

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Routing Logic

Chi-X will automatically route orders to either the Central Limit Displayed Order Book, or the Non-Displayed Order Book (Chi-Delta) depending on the order characteristics. These are detailed in the table below:

Displayed/ Non- Displayed	Pegged Order	Minimum Quantity	LIS or above	Result
Displayed	-	No	-	Routed to visible book
Displayed	-	Yes	-	Order Rejected. Minimum Quantity not supported in visible book
Non-Displayed	Yes	-	No	Routed to Chi-Delta
Non- Displayed*	Yes	No	Yes	Routed to visible book as a non-displayed order
Non-Displayed	Yes	Yes	Yes	Routed to Chi-Delta
Non-Displayed	No	-	No	Routed to Chi-Delta. Mid-peg will be applied to the order automatically
Non- Displayed*	No	No	Yes	Routed to visible book as a non-displayed order
Non-Displayed	No	Yes	Yes	Routed to Chi-Delta. Mid-peg will be applied to the order automatically

* The behaviour described is for non-IOC/FOK orders. IOC and FOK orders which are tagged as non-displayed orders will always be routed to Chi-Delta regardless of the scenario above.

NB: ETFs, ETCs, IDRs and certain Swiss stocks have no LIS value (see page 10), therefore any non-displayed order in these securities will be directed to the visible book unless a minimum quantity is applied.

Chi-Vision:

Chi-Vision is the Chi-X order routing service. Orders are limit orders.

Orders entered into Chi-Vision follow an order routing strategy as follows:

Routing

First Destination: Chi-Delta (as an IOC Order). This order will match in Chi-Delta at the mid-price on the market of listing, up to the limit price of the order. Any unexecuted volume will be sent to the second destination.

Second Destination: Visible order book (as an IOC order). This order will match against volume on the central limit order book, up to the limit of the order. Any unexecuted volume will be sent to the third destination.

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Third Destination: OTC trades with External Liquidity Providers. Chi-X sends IOC orders to the External Liquidity Providers. Any unexecuted volume will be sent to the resting destination (see notes below).

Resting

Users of the Chi-Vision service select where unexecuted portions of Chi-Vision orders will rest. Possible destinations are:

- Visible Order Book (unexecuted portions will rest as passive orders with a limit price)
- Chi-Delta Order Book (unexecuted portions will rest with a limit price)
- None (unexecuted portions are cancelled)

External Liquidity Providers (ELPs)

Pricing

Trades with ELPs will occur at the limit price of the order or better.

The price will also comply with the pricing methodology of the ELP, which is published and varies by ELP. In all cases the methodology is either at or inside the volume weighted spread, or at the mid-price of the best bid or offer at the Market of Listing.

Selection of ELPs

Chi-Vision clients may select which ELPs their orders will be sent to match against. At least one ELP must be selected.

ELP Trades

All trades that are agreed with ELPs occur OTC and are brought onto the Chi-X MTF. These trades become subject to Chi-X rules at this point.

ccCFD Service

Clients submit a message to Chi-X which is a combined order of an equity (the equity hedge) against an equal and opposite CFD order. Chi-X validates these orders and routes them to LCH.Clearnet for allocation to an ACM. After allocation, two matching equity orders and two matching CFD orders are matched OTC to result in one equity trade and one CFD trade. Chi-X brings these trades onto its MTF where they become subject to Chi-X Rules. Chi-X also trade reports these trades at this point.

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System response times may vary for a number of reasons including market conditions, trading volumes and system performance.