

iLink 3 Binary Order Entry - BrokerTec Markets

To trade BrokerTec products on the CME Globex platform customers must implement the order entry functionality described in [iLink 3 Binary Order Entry](#), and, if applicable, the market data functionality described in [MDP 3.0](#). Customers with this functionality in place can refer to the BrokerTec-specific functionality described in this topic.

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BrokerTec Market Functionality

This section summarizes iLink 3 considerations specific to BrokerTec markets.



For a complete description of BrokerTec market functionality, please refer to the BrokerTec on CME Globex Market Functionality available in the [BrokerTec Support Portal](#).

To access the BrokerTec Support Portal you must be an existing customer or vendor with a signed Non-Disclosure Agreement (NDA) in place with BrokerTec.

BrokerTec Markets on CME Globex

Customers developing applications to trade BrokerTec products on CME Globex must be aware of the following:

Market Access

- BrokerTec markets are only available through iLink 3 Binary Order Entry
- BrokerTec markets are only available through dedicated Market Segment Gateways (MSGWs)

Supported Order Types & Qualifiers

The following order types and order type qualifiers are supported:

Order Types (tag 40-OrderType)

- OrderType=2 (Limit order)

Order Qualifiers (tag 59-TimInForce)

- TimInForce=0 (Day order)
- TimInForce=3 (Fill And Kill order)
- TimInForce=4 (Fill Or Kill order)

Fill And Kill (FAK)

For BrokerTec products that are not workup-eligible, an FAK order is executed against any available quantity and any remaining quantity is immediately eliminated.

For workup-eligible products,

- **FAK** order is executed against any available quantity and any remaining quantity will be eliminated at the end of workup
- **FAK Immediate (FAKi)** order is executed against any available quantity and any remaining quantity is immediately eliminated.
- **FAKi with Minimum Quantity (FAKi / Min)** order is executed at least minimum quantity and any remaining quantity is immediately eliminated.



FAKi is only applicable to Workup-eligible instruments

Order Type & Qualifiers	US Treasuries	US Repo	EU Repo	UK Gilt	EU EGB
Limit	Y	Y	Y	Y	Y
Fill And Kill (FAK)	Y	Y	Y	Y	Y
Fill And Kill Immediate (FAKi)		Y			
Fill And Kill with Min (FAK / Min)	Y		Y	Y	Y
Fill And Kill Immediate with Min (FAKi / Min)		Y			
Fill Or Kill (FOK)	Y	Y	Y	Y	Y
Only Best	Y	Y	Y	Y	Y
Passive Orders		Y	Y		

The following order types and order type qualifiers are not supported for BrokerTec products.

- Market Protect (tag 40-OrderType=1)
- Market Limit (tag 40-OrderType=K)
- Stop Protect (tag 40-OrderType=3)
- Stop Limit (tag 40-OrderType=4)
- GTC (tag 59-TimeInForce=1)
- GTD (tag 59-TimeInForce=6)

This table illustrates how to define order type and order qualifier:

Types of Orders	Tag 59 TimeInForce	Tag 40 OrdType	Tag 18 ExecInst	Tag 110 MinQty	Tag 5906 ExecutionMode (Passive vs Aggressive)	Order Type Combinations Allowed
Limit	0 (Day)	2	n/a	Optional: can also include Min Qty	P = Passive A or null = Aggressive	AON, OB
Fill And Kill (FAK)	3 (FAK)	2	n/a	n/a	A	OB
FAK Immediate (FAKi)	3 (FAK)	2	00000100 (not held)	n/a	A	
FAK Immediate w/ MinQty (FAKi / Min)	3 (FAK)	2	00000100 (not held)	Qty > Min qty > 0	A	
Fill Or Kill (FOK)	4 (FOK)	2	n/a	n/a	A	OB
Only Best (OB)	0 (Day)	2	00000010 (only best)	n/a	P or A	Limit, FAK, AON
All Or None (AON)	0 (Day)	2	00000001 (AON)	n/a	P or A	Limit, OB



For BrokerTec products, modification of orders from display quantity (tag 1138-DisplayQuantity >0) to non-display quantity (tag 1138-DisplayQuantity =0), and vice versa, is not allowed.

BrokerTec on CME Globex Display Quantity

Display Quantity is submitted via iLink 3 tag 1138-DisplayQty for the order to control the portion of the order's quantity that is displayed to the market. The display quantity is the quantity shown to the market as specified by the customer, gradually exposing the remaining quantity until the entire order quantity is depleted.

BrokerTec on CME Globex Mass Quote

The [Mass Quote](#) message is used for European Government Bonds (EGBs) only.

In the event of Unsolicited Quote Cancels, all resting quotes are cancelled on behalf of the Mass Quoted customers. The unsolicited cancel code is contained in [tag 9775-UnsolicitedCancelTypes](#); the reason text will not be sent in the message.

Customers can also receive unsolicited Quote Acknowledgment messages in response to quote cancels due to a resting quantity that is less than the minimum allowed quantity (tag 9775 = 1).

More information regarding Mass Quotes for BrokerTec on CME Globex can be found in [CME Globex BrokerTec Market Functionality](#).

Order Entry Messages

The following sections contain the tag-level client system messaging impacts that must be accommodated in order to trade BrokerTec products on CME Globex.

FIX Tags

The following new FIX tags will be added for BrokerTec markets:

- Tag 18-ExecInst
- Tag 5906-ExecutionMode
- Tag 6881-Managed
- Tag 9373-LiquidityProvision
- Tag 5409-ShortSaleType

Tag	Field Name	Binary Type	Binary Length	Req	Value	Description
18	ExecInst	ExecInst	1	N	Bit 0: (least significant bit) All Or None Bit 1: Only Best Bit 2: Not Held Bit 3: Reserved for future use Bit 4: Reserved for future use Bit 5: Reserved for future use Bit 6: Reserved for future use Bit 7: (most significant bit) Reserved for future use	Instructions for order handling for fixed income markets. Only Best may be applied to resting and aggressing orders and: <ul style="list-style-type: none"> • Prevents submission of an order if the order's price is not equal to or better than the best price on the book. • Cancels an order from the book if a new order with a better price enters the queue. • This order condition permits the order to be alone at the best price level or join other orders at the best price level. Not Held (applies only to US Repo) eliminates quantity remaining from an FaKi order (tag 59=3) and ensures it will not be included in a work-up session; however, the order can still trigger a work-up session. AONs will have a separate book with a separate ISIN. The AON orders that cannot trade immediately can rest in the AON book. They can only trade with AON orders on the other side of the AON book that have the SAME PRICE and SAME QUANTITY. Applicable only for BrokerTec Markets; <ul style="list-style-type: none"> • should not be used for future and options markets (i.e. tag 18=00000000) New orders submitted with tag 18 instructions for futures and options markets will be rejected with 35=j, except: <ul style="list-style-type: none"> • Limit FAK orders submitted with Not Held instruction • Market FAK orders submitted with Not Held instruction
5906	Execution Mode	ExecMode	1	N	<ul style="list-style-type: none"> • A=Aggressive • P=Passive 	Instruction for whether the order should rest on the book upon entry or match as an aggressor. A Passive Order will rest in the market without executing unless matched with an Aggressive Order on the other side. An Aggressive Order will match against any other order on the opposite side. Applicable for US & EU Repos. New Orders submitted with tag 5906 = P will be rejected for futures and options markets.
6881	Managed Order	BooleanNULL		N	<ul style="list-style-type: none"> • 0=False • 1=True 	Boolean: flags a managed order. Applicable only to Repo fixed income markets. New Orders submitted with tag 6881 = 1 will be rejected for futures and options markets.
9373	LiquidityFlag	BooleanNULL	1	N	<ul style="list-style-type: none"> • 0=False • 1=True 	Indicates if an order was submitted for market making obligation as required for MiFID. Applicable only for EU fixed income markets.

5409	ShortSale Type	ShortSaleType	1	N	<p>0=Long Sell</p> <p>1=Short Sale With No Exemption (SESH)</p> <p>2=Short Sale With Exemption (SSEX)</p> <p>3=Undisclosed Sell (Information not available – UNDI)</p>	<p>Indicates the type of short sale on Sell orders only as required for MiFID.</p> <p>Should not be used for Buy orders.</p> <p>Applicable only for EU fixed income markets.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>The Short-Selling Field is only required from Participants when BrokerTec EU has a regulatory obligation (pursuant to Article 26(5) of MiFIR) to conduct transaction reporting on behalf of the Participant. This obligation only applies to BrokerTec EU when the relevant participant is exempt from MiFIR (typically non-EEA firms, corporate entities or certain asset managers). Please reach out to TradingVenueCompliance@cmegroup.com for guidance.</p> </div>
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These new tags will be added to the following iLink messages:

- New Order Single
- Order Cancel Replace Request
- Order Cancel Request
- Order Mass Action Request
- Order Mass Action Report
- Mass Quote
- Quote Cancel
- Mass Quote Acknowledgment
- Quote Cancel Acknowledgment
- Execution Report - Status
- Execution Report - Reject
- Execution Report - New
- Execution Report - Elimination
- Execution Report Modify
- Execution Report - Cancel
- Order Cancel Reject
- Order Cancel Replace Reject
- Execution Report - Trade Outright
- Execution Report - Trade Spread
- Execution Report - Trade Addendum Outright
- Execution Report - Trade Addendum Spread

 All fields may not be applicable to all messages—for example, Order Cancel Request has only tag 9373-Liquidity Flag added.

The following tags relate to Workup functionality:

- Tag 820-TradeLinkID and Tag 7191-Ownership will be added to the Execution Report - Trade Outright message for US Repos:

Tag	Field Name	Binary Type	Binary Length	Req	Description
820	TradeLinkID	UInt32NULL	4	N	Contains the workup ID; unique per instrument per day.
7191	Ownership	UInt8	1	N	<p>Specifies the owner of the work up private phase.</p> <ul style="list-style-type: none"> • 0 – Aggressive owner included in workup • 1 – Passive owner included in workup • 2 – Aggressive owner fill price from order excluded from workup during sweep • 3 – Passive owner fill price from order excluded from workup during sweep • 9 - Not Applicable

Customers can leverage the following tags to detect whether they are aggressive or passive owners of the workup without waiting for the market data security status message.

- tag 7191-Ownership
- tag 1057-AggressorIndicator
- tag 820-TradeLinkID

More information regarding Workup functionality can be found in the [CME Globex BrokerTec Market Functionality](#).

The following tags are required for all EU fixed income products, but optional for CME Group futures and options.

- Tag 5290-Executor and tag 36023-IDMShortcode are added to the Party Details Definition Request, Party Details Definition Request Acknowledgment, and Party Details List Report messages.

CME Globex will validate the Executor and IDMSHORTCODE presence, and reject if tag 5290 and/or tag 36023 is not a registered value for all iLink 3 BrokerTec EU application messages, except Order Cancel, Order Mass Cancel, and Quote Cancel messages.

Tag 5290 and tag 36023 will be accepted and acknowledged if sent on Order Cancel, Order Mass Cancel, and Quote Cancel messages. If not populated on these message types, the message will be accepted and acknowledged with the values as follows:

Tag 5290 (Executor) and/or Tag 36023 (IDMSHORTCODE)	Expected Behavior	Acknowledge Value
Not present	Accept	<ul style="list-style-type: none"> For Cancel message - Value from the resting order For Mass Cancel/Quote Cancel message - N/A
Present with an unregistered value	Reject	N/A
Present with a registered value	Accept	Value from Cancel/Mass Cancel/Quote Cancel message

The short codes are part of the Party Details Definition. Pre-registered cancel acknowledgement contains tag 1505-PartyDetailsListRequestID from the original order submission.

If the pre-registered cancel request contains different tag 1505-PartyDetailsListRequestID, the short code may not match with tag 1505-PartyDetailsListRequestID from the cancel acknowledgement. In this case, customers must be aware the cancel is accepted and acknowledged with the value from cancel request.

For example, given that PartyDetailID 1 and PartyDetailID 2 belong to the same session and firm:

- PartyDetailID 1 with executor EXEC1 and IDMSHORTCODE IDM1
- PartyDetailID 2 with executor EXEC2 and IDMSHORTCODE IDM2

If customer submits new order with PartyDetailID = 1, and cancel this same order with PartyDetailID = 2, CME Globex will return PartyDetailID = 1 on the cancel acknowledgement.

Messages missing the tags or containing an unregistered value will be rejected with:

- Business Reject message with tag 380=5 (required field missing) and
 - Tag 58='Tag 5290 (Executor) required field missing'
 - Tag 58='Tag 36023 (IDMSHORTCODE) required field missing'
 - Tag 58='Tag 5290 (Executor) not registered'
 - Tag 58='Tag 36023 (IDMSHORTCODE) not registered'

Tag 5290-Executor and tag 36023-IDMSHORTCODE are available in New Release for customer testing. To facilitate client development and certification, in New Release the presence of these tags will be validated but the values are not required to be registered.

Tag	Field Name	Binary Type	Binary Length	Req	Description
5290	Executor	uInt64NULL	8	N	Will be populated with the MIFID short code for the person or algo responsible for the execution of the order within firm. Short Code will be referring to a person or algo which will be mapped to National ID or Algo at reporting time. Applicable for EU BrokerTec and EBS MiFID.
36023	IDMSHORTCODE	uInt64NULL	8	N	Represents the MIFID Short Code of the Investment Decision Maker. Applicable for EU BrokerTec and EBS MiFID.

- Tag 5677-SourceRepoID and Tag 37715-MaxNoOfSubstitutions will be added to the Security Definition Request and Security Definition Response messages:

Tag	Field Name	Binary Type	Binary Length	Req	Description
37715	MaxNoOfSubstitutions	uInt8NULL	1	N	Max number of substitutions allowed. The value '0' indicates substitutions are not allowed.
5677	SourceRepoID	Int32NULL	4	N	Represents the source Repo instrument on which the new custom Repo should be modeled.

New Repeating Group

A new repeating group for MIFID reporting will be added to the following messages:

- Party Details Definition Request
- Party Details Definition Request Acknowledgment
- Party Details List Report

Tag	Name	Binary Type	Binary Length	Req	Enumeration	Description
2668	NoTrdRegPublications	groupSize	3	N		Number of regulatory publication rules in repeating group Used to indicate that an ESCB customer can exempt from disclosure any activity that is related to central banking activity Should always be "1" if used; otherwise set to '0'
2669	TrdRegPublicationType	ulnt8	1	Y	2=Exempt from Publication	Specifies the type of regulatory trade publication Additional reasons for the publication type will be specified in tag 2670-TrdRegPublicationReason Represents allowable exemptions for the post-trade publication of trade transactions Should always be "2"
2670	TrdRegPublicationReason	ulnt8	1	Y	12=Exempted due to European System of Central Banks (ESCB) policy transaction	Additional reason for trade publication type specified in tag 2669-TrdRegPublicationType (2669) Reasons may be specific to regulatory trade publication rules Should always be "12"

A new repeating group will be added to the following message types to support binary trade reporting:

- Execution Report Trade Outright
- Execution Report Trade Spread
- Execution Report Trade Spread Leg

Tag	Name	Req	Binary Type	Binary Length	Description
1795	NoOrderEvents	N	groupSize	3	Number of fills which comprise fill quantity
1799	OrderEventPx	Y	PRICE9	8	Refers to the fill price; same as tag 31-LastPx
1802	OrderEventText	N	String5	5	Will not be present for BrokerTec US; Will be populated with the firm ID of the opposite order for BrokerTec EU bilateral trades
1797	OrderEventExecID	Y	ulnt32	4	This is a unique ID which ties together a specific fill between two orders; It will be unique per instrument per day
1800	OrderEventQTY	Y	ulnt32	4	Refers to the specific fill quantity between this order and the opposite order
1796	OrderEventType	Y	OrderEventTye	1	The type of event affecting an order <ul style="list-style-type: none"> • 4=Partially Filled • 5=Filled
1798	OrderEventReason	Y	ulnt8	1	Action that caused the event to occur. 100=Binary Trade Reporting

For more information please see also: [iLink 3 STP Reconciliation](#).

A new repeating group will be added to the following message types to support Trade Cancel and Trade Adjustments:

- Execution Report Trade Addendum Outright
- Execution Report Trade Addendum Spread
- Execution Report Trade Addendum Spread Leg

Tag	Name	Req	Binary Type	Binary Length	Description
1795	NoOrderEvents	N	groupSize	3	Number of fills which comprise fill quantity
1799	OrderEventPx	Y	PRICE9	8	For Trade Cancel, refers to price of the canceled trade. For Trade Correction, refers to the new fill price.
1802	OrderEventText	N	String5	5	Will not be present for BrokerTec US; Will be populated with the firm ID of the opposite order for BrokerTec EU bilateral trades
1797	OrderEventExecID	Y	ulnt32	4	This is a unique ID which ties together a specific fill between two orders; It will be unique per instrument per day

1800	OrderEventQTY	Y	uint32	4	Refers to the specific fill quantity between this order and the opposite order
1796	OrderEventType	Y	TradeAddendum	1	The type of event affecting an order <ul style="list-style-type: none"> • 4=Partially Filled • 5=Filled • 100=Trade Cancel • 101=Trade Correction
1798	OrderEventReason	Y	uint8	1	Action that caused the event to occur. 100=Binary Trade Reporting
6555	OriginalOrderEventExecID	N	uint32NULL	4	Contains the previous tag 1797-OrderEventExecID value of the trade being adjusted or busted. Will not be present on the following message types <ul style="list-style-type: none"> • Execution Report Trade Outright • Execution Report Trade Spread • Execution Report Trade Spread Leg



The following fields are required for CME Group futures and options, but optional for BrokerTec products:

- tag 1693-PartyDetailRole=24 (Customer Account)
 - For [New Order - Single](#), [Order Cancel Replace Request](#), and [Mass Quote](#), message is rejected if Account field is present but populated only with spaces.
 - Will be ignored if present for [Order Cancel Request](#).
 - Account modification will **not** cause BrokerTec order to lose priority
- tag 582-CTI Code
- tag 1816-ClearingAccountType
- tag 1031-CustOrderHandlingInst

The following fields are required for BrokerTec products. iLink3 will reject BrokerTec messages when these tags are not populated, even though they are not a regulatory requirement for BrokerTec markets.

- tag 1693-PartyDetailRole=118 (Operator)
- tag 5392-SenderID
- tag 9537-Location

New Message Type

[Execution Acknowledgement Message \(35=BN\)](#)

The Execution Report Acknowledgment message notifies CME Globex that a particular fill has either been accepted or rejected by a counterparty for EU bilateral trades.

More information regarding Bilateral Accept/Reject Trading can be found in the "CME Globex BrokerTec Market Functionality" document, which is available in the [BrokerTec Support Portal](#).

Duplicate Order Validation

This topic provides information about iLink 3 duplicate order check. The Securities Exchange Act Rule 15c3-5 – Risk Management Controls for Brokers or Dealers with Market Access requires that financial risk management controls and supervisory procedures be reasonably designed to systematically limit the financial exposure of the broker- dealer that could arise as a result of market access. The iLink 3 duplicate order check is designed to address this risk by:

- Supporting valid trading activity, and
- Preventing the entry of erroneous orders by rejecting orders that that indicate duplicative orders over a short period of time



The duplicate order check functionality is only applicable to BrokerTec US and not BrokerTec EU.

To protect market participants from the negative effects of erroneous orders messaging, CME Globex has implemented the duplicate order check for iLink 3 Binary Order Entry as described below.

Message submitted by the client system on an iLink 3 session are monitored by the number of duplicate messages sent over a predefined time interval with the same:

- Tag 35-MessageType
- Tag 48-SecurityID
- Tag 54-Side
- Tag 44-Price

- Tag 38-Order Quantity
- Tag 59-Time in force (0 or 3)
- Tag 110-Minimum Quantity
- Tag 1138-Display Quantity
- Tag 1693 (PartyDetailRole =1)-Executing Firm
- Tag 39006-Session
- Tag 5392-SenderID

The time interval begins with the first duplicate message processed. At the end of the interval, if no violation has occurred, the message count and interval reset pending the next duplicate message processed.

- The trigger for rejecting a duplicate order/modify is receiving consecutive messages with the same information in the fields as outlined above for API users (Tag 1028=N) that has exceeded the configurable threshold of duplicate orders allowed over a rolling window.

If an iLink 3 session exceeds the duplicate orders threshold, subsequent new order messages will be rejected via a Business Level Reject (tag 35-MsgType=j) message with tag 380-BusinessRejectReason = 119 - Duplicate Order Threshold Exceeded until the duplicate order messages allowed over a rolling window falls below the threshold.

- For Automated Duplicate Order Threshold Exceeded (tag 1028-ManualOrderIndicator= 0), the Business Level Reject message will be sent with tag 58-Text = Automated Duplicate Order Threshold Exceeded Reject. Current Duplicate Order Count
- For Manual Duplicate Order Threshold Exceeded (tag 1028-ManualOrderIndicator r=1), the Business Level Reject message will be sent with tag 58-Text = Manual Duplicate Order Threshold Exceeded Reject. Current Duplicate Order Count: x

The duplicate order check will include only this message type:

- New Order Single

The following messages types will reset the duplicate message count and interval reset back to 0

- Order Cancel Replace Request
- Order Cancel Request
- Order Mass Action Request
- Order Mass Status Request
- Order Status Request
- Mass Quote
- Security Definition Request

The duplicate order thresholds for New Order Single message are:

New Order Single	Tag 1028-Manual OrderIndicator	Reject Threshold	Interval
Automated Order	N	100	100 millisecond window
Manual Order	Y	20	One-second window

Cancel on Disconnect

All iLink 3 sessions are Cancel on Disconnect (CoD) **mandatory**. The COD functionality allows users to have working orders automatically canceled upon an ungraceful session disconnect. Detailed information on CoD is available in [Risk Management Services](#).

The existing BrokerTec CoD allows users to have working orders automatically canceled upon any session disconnect. The new BrokerTec CoD on CME Globex will NOT be invoked for a graceful disconnect – a voluntary termination performed by the client system which initiate termination of the connection. This involves the successful completion of each of the following steps:

- Client system sends Terminate request
- CME Group sends Terminate response
- Client system receives the Terminate response

For a graceful session disconnect, it is the Client's responsibility to cancel all working orders before sending a Terminate message in order to have all working orders cancelled.



On BrokerTec Global Front End Application (GFE) on CME Globex, all working orders are cancelled on behalf of GFE customers in the event of any customer disconnect, even when graceful disconnect. Upon reconnect, the customer will receive an [iLink 3 Execution Report - Cancel](#) or [iLink 3 Order Mass Action Report](#) message confirming cancellation.



CME Globex BrokerTec does not support route-through functionality. For information on route-throughs refer to section 1.6 of the [iLink Session ID Policy](#).