

Flow Analytics & HHI Insights Technical Specifications

5400 / 5410 / 5420 Products

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1 PRODUCT DESCRIPTION

This document provides relevant information on the Flow Analytics & HHI Insights product suite commercialized by BME Market Data, which consists on two separate information products:

- a) Flow Analytics File: BME_FLOW_ANALYTICS_EQ_YYYYMMDD.txt
- b) HHI Insight File: BME_HHI_Insight_EQ_YYYYMMDD.txt

1.1 Service Schedule

The files will normally be available at 21:00 CET every trading of the TARGET calendar.

1.2 Client Support

Address	Email	Telephone
Palacio de la Bolsa, Plaza de la Lealtad 1, 28014 - Madrid	marketdata@grupobme.es	+ 34 91 709 58 10

The clients will have at their disposal a support service from 09:00 to 18:30 CET from Monday to Friday. BME Market Data will keep the clients updated regarding any critical modification in the files, or any technical improvement that might take place.

2 FORMAT AND DATA DELIVERY

2.1 File Format

BME MARKET DATA delivers this product market data under the following formats:

- TXT Format ("," as field separator and "." or "," as decimal separator). This format is compatible with databases as well as with spreadsheets. Each file field is separated from the following by ";" and each line ends with a specific end of line character.

2.2 Data Formats

2.2.1 Numerical formats

There is no thousands separator, and depending on each file the “.” Or the “,” will be used as decimal separator.

2.2.2 Date and time conventions

Unless stated otherwise, the date fields are in the format YYYYMMDD being YYYY the year, MM the month and DD the day. Time fields are stated following the format HHMMSS or HHMMSSXX being HH the hour, MM the minute, SS the second and XX second hundredth. Dates and times refer to CET (Central European Time).

2.2.3 Headers of TXT files

The first line of ASCII files (extensions TXT or similar) contains the headings of the file, the rest of lines contain the data.

2.3 Name of Files

Name of the files by product and year. A daily file will be generated.

PRODUCT	DAILY / MONTHLY
FLOW ANALYTICS	BME_FLOW_ANALYTICS_EQ_YYYYMMDD.txt
HHI INSIGHTS	BME_HHI_Insight_EQ_YYYYMMDD.txt

2.4 File Download

The information is accessible through the Internet via a sFTP (ssh file transfer protocol).

3 CONTENTS

3.1 Flow Analytics

Descriptions of the fields to be included in the file BME_FLOW_ANALYTICS_EQ_YYYYMMDD.txt

FIELD CODE	LENGTH	DESCRIPTION
isin	str	ISIN code
ticker	str	Ticker Symbol
nomcompleto	str	Equity full name
nomred	str	Equity short name
currency	str	Trading currency
grupoval	str	ID Security group
tipoproducto	str	ID Product type
trade_imbalance_customer	str	Buy minus sell number of shares executed of customers
aggressive_trade_imbalance_customer	int shares	Buy minus sell number of shares aggressively executed of customers during continuous trading
passive_trade_imbalance_customer	int shares	Buy minus sell number of shares passively executed of customers during continuous trading
auction_trade_imbalance_customer	int shares	Buy minus sell number of shares executed of customers during the auctions and Trading-At-Last
trade_volume_customer	int shares	Total buy and sell number of shares executed of customers
aggressive_trade_volume_customer	int shares	Total buy and sell number of shares aggressively executed of customers during continuous trading
passive_trade_volume_customer	int shares	Total buy and sell number of shares passively executed of customers during continuous trading
auction_trade_volume_customer	int shares	Total buy and sell number of shares executed of customers during the auctions and Trading-At-Last
trade_imbalance_non_customer	str	Buy minus sell number of shares executed of non customers

FIELD CODE	LENGTH	DESCRIPTION
aggressive_trade_imbalance_non_customer	int shares	Buy minus sell number of shares aggressively executed of non customers during continuous trading
passive_trade_imbalance_non_customer	int shares	Buy minus sell number of shares passively executed of non customers during continuous trading
auction_trade_imbalance_non_customer	int shares	Buy minus sell number of shares executed of non customers during the auctions and Trading-At-Last
trade_volume_non_customer	int shares	Total buy and sell number of shares executed of non customers
aggressive_trade_volume_non_customer	int shares	Total buy and sell number of shares aggressively executed of non customers during continuous trading
passive_trade_volume_non_customer	int shares	Total buy and sell number of shares passively executed of non customers during continuous trading
auction_trade_volume_non_customer	int shares	Total buy and sell number of shares executed of non customers during the auctions and Trading-At-Last
trade_volume	int shares	Total buy and sell number of shares executed
aggressive_trade_volume	int shares	Total buy and sell number of shares aggressively executed during continuous trading
aggressive_trade_buy_volume	int shares	Total buy number of shares aggressively executed during continuous trading (buy orders directly executed)
aggressive_trade_sell_volume	int shares	Total sell number of shares aggressively executed during continuous trading (sell orders directly executed)
passive_trade_volume	int shares	Total buy and sell number of shares passively executed during continuous trading
passive_trade_buy_volume	int shares	Total buy number of shares passively executed during continuous trading (buy orders included in the order book)
passive_trade_sell_volume	Int shares	Total sell number of shares passively executed during continuous trading (sell orders included in the order book)
auction_trade_volume	int	Total buy and sell number of shares executed during the auctions and Trading-At-Last

FIELD CODE	LENGTH	DESCRIPTION
	shares	
auction_trade_open_volume	int shares	Total buy and sell number of shares executed during the open auction
auction_trade_close_volume	int shares	Total buy and sell number of shares executed during the close auction
auction_trade_volatility_volume	int shares	Total buy and sell number of shares executed during the volatility auctions
trade_value	int shares	Total buy and sell value executed denominated in trading currency
aggressive_trade_value	float64 eur	Total buy and sell value aggressively executed during continuous trading denominated in trading currency
aggressive_trade_buy_value	float64 eur	Total buy value aggressively executed during continuous trading denominated in trading currency (buy orders directly executed)
aggressive_trade_sell_value	float64 eur	Total sell value aggressively executed during continuous trading denominated in trading currency (sell orders directly executed)
passive_trade_value	float64 eur	Total buy and sell value passively executed during continuous trading denominated in trading currency
passive_trade_buy_value	float64 eur	Total buy value passively executed during continuous trading denominated in trading currency (buy orders included in the order book)
passive_trade_sell_value	float64 eur	Total sell value passively executed during continuous trading denominated in trading currency (sell orders included in the order book)
auction_trade_value	float64 eur	Total buy and sell value executed during auctions and Trading-At-Last denominated in trading currency
auction_trade_open_value	float64 eur	Total buy and sell value executed during open auction denominated in trading currency
auction_trade_close_value	float64 eur	Total buy and sell value executed during closing auction and Trading-At-Last denominated in trading currency

FIELD CODE	LENGTH	DESCRIPTION
auction_trade_volatility_value	float64 eur	Total buy and sell value executed during volatility auctions denominated in trading currency

3.1.1 Customer / Non-Customer Classification

Customer or Non-Customers are categories that are established depending on their Trading Capacity (field 29, Table 2. Annex I of the COMMISSION DELEGATED REGULATION (EU) 2017/590).

- a) Customer: trading under the risk-less principal capacity (Trading Capacity = 'AOTC' or 'MTCH')
- b) Non-Customer: Order flow not classified as «Customer» flow (Trading Capacity = 'DEAL').

3.1.2 ID Security Group (grupoval)

Possible values for the 'grupoval' field are the following:

Segment	GrupoVal	Description	RTS 14
EQ	AC	Continuous market	Shares
EQ	CE	Floor Electronic Trading	Shares

Only consider regular market.

3.2 HHI Insights

Descriptions of the fields to be included in the file BME_HHI_Insight_EQ_YYYYMMDD.txt:

FIELD CODE	LENGTH	DESCRIPTION
DATE	str	Date in YYYYMMDD format
ISIN	str	ISIN code
TICKER	str	Ticker Symbol
NOMCOMPLETO	str	Equity full name
NOMRED	str	Equity short name
CURRENCY	str	Trading currency
GRUPOVAL	str	ID Security group
TIPOPRODUCTO	str	ID Product type
HHI	Float64	HHI concentration, market concentration considering all traded shares
HHI_BUY	Float64	HHI concentration, market concentration considering only bought shares
HHI_SELL	Float64	HHI concentration, market concentration considering only sold shares
HHI_AUCTION	Float64	HHI concentration, market concentration considering only shares traded during auctions
HHI_AUCTION_BUY	Float64	HHI concentration, market concentration considering only shares bought during auctions
HHI_AUCTION_SELL	Float64	HHI concentration, market concentration considering only shares sold during auctions
HHI_AUCTION_OPEN	Float64	HHI concentration, market concentration considering only shares traded during open auction
HHI_AUCTION_OPEN_BUY	Float64	HHI concentration, market concentration considering only shares bought during open auction
HHI_AUCTION_OPEN_SELL	Float64	HHI concentration, market concentration considering only shares sold during open auction
HHI_AUCTION_CLOSE	Float64	HHI concentration, market concentration considering only shares traded during close auction
HHI_AUCTION_CLOSE_BUY	Float64	HHI concentration, market concentration considering only shares bought during close auction
HHI_AUCTION_CLOSE_SELL	Float64	HHI concentration, market concentration considering only shares sold during close auction

FIELD CODE	LENGTH	DESCRIPTION
HHI_AUCTION_VOLATILITY	Float64	HHI concentration, market concentration considering only shares traded during volatility auctions
HHI_AUCTION_VOLATILITY_BUY	Float64	HHI concentration, market concentration considering only shares bought during volatility auctions
HHI_AUCTION_VOLATILITY_SELL	Float64	HHI concentration, market concentration considering only shares sold during volatility auctions
HHI_AGGRESSIVE	Float64	HHI concentration, market concentration considering only aggressively traded shares
HHI_AGGRESSIVE_BUY	Float64	HHI concentration, market concentration considering only aggressively bought shares
HHI_AGGRESSIVE_SELL	Float64	HHI concentration, market concentration considering only aggressively sold shares
HHI_PASSIVE	Float64	HHI concentration, market concentration considering only passively traded shares
HHI_PASSIVE_BUY	Float64	HHI concentration, market concentration considering only passively bought shares
HHI_PASSIVE_SELL	Float64	HHI concentration, market concentration considering only passively sold shares
HHI_CUSTOMER	Float64	HHI concentration, market concentration considering only shares traded by customers
HHI_CUSTOMER_BUY	Float64	HHI concentration, market concentration considering only shares bought by customers
HHI_CUSTOMER_SELL	Float64	HHI concentration, market concentration considering only shares sold by customers
HHI_NONCUSTOMER	Float64	HHI concentration, market concentration considering only shared traded by non-customers
HHI_NONCUSTOMER_BUY	Float64	HHI concentration, market concentration considering only shares bought by non-customers
HHI_NONCUSTOMER_SELL	Float64	HHI concentration, market concentration considering only shares sold by noncustomers
TRADE VOLUME	INT	Total buy and sell number of shares traded
AUCTION_TRADE_VOLUME	INT	Total buy and sell number of shares traded during the auctions and Trading-At-Last
OPEN_AUCTION_TRADE_VOLUME	INT	Total buy and sell number of shares traded during the open auction
CLOSE_AUCTION_TRADE_VOLUME	INT	Total buy and sell number of shares traded during the close auction and Trading-At-Last
VOLATILITY_AUCTION_TRADE_VOLUME	INT	Total buy and sell number of shares traded during the volatility auctions
AGGRESSIVE_TRADE_VOLUME	INT	Total buy and sell number of shares aggressively traded during continuous trading

FIELD CODE	LENGTH	DESCRIPTION
PASSIVE_TRADE_VOLUME	INT	Total buy and sell number of shares passively traded during continuous trading
CUSTOMER_TRADE_VOLUME	INT	Total buy and sell number of shares traded under the risk-less principal capacity and not originating from a Sponsored Access User
NON_CUSTOMER_TRADE_VOLUME	INT	Total buy and sell number of shares traded under the principal capacity or originating from a Sponsored Access User

3.2.1 ID Security Group (grupoval)

Possible values for the 'grupoval' field are the following:

Segment	GrupoVal	Description	RTS 14
EQ	AC	Continuous market	Shares
EQ	CE	Floor Electronic Trading	Shares

Only consider Regular Market.

3.2.2 Herfindahl-Hirschman Index (HHI)

Market concentration is measured by the Herfindahl-Hirschman Index (HHI). The HHI is the sum of the squared market shares of all market participants.

It is calculated as follows:

$$HHI = \sum_{i=1}^N s_i^2$$

s_i denotes market share of market participant i , where,

$$s_i = \frac{q_i}{\sum_{j=1}^N q_j}$$

q_i represents the number of shares traded by market participant i , q_j the number of shares traded by any market participant, and N denotes the total number of market participants.

Thus, the HHI can assume values from 0 to 1. In order to protect anonymity in markets with very high concentration, no exact HHIs are provided for values above 0.9. Instead, 0.9 is specified.

3.2.3 Member Organization

Market participants are identified by Member ID: A member organisation may have several member IDs through which orders are routed. One member per broker, the activity of a member is grouped in the 4 exchanges (Madrid, Barcelona, Bilbao, Valencia).

3.2.4 Flow Classification

Order flow is classified as follows (Classification, Definition):

- Overall flow: All shares traded during continuous trading, auctions and Trading-At-Last
- Aggressive flow : Shares aggressively traded during continuous trading
- Passive flow: Shares passively traded during continuous trading Auction flow Shares traded during auctions and Trading-At-Last
- Customer flow: Trading under the risk-less principal capacity during continuous trading, auctions and Trading-At-Last and not originating from a Sponsored Access User
- Non-customer flow : Shares traded under the principal capacity or originating from a Sponsored Access User during continuous trading, auctions and Trading-At-Last