



PHLX XL SYSTEM SETTINGS

HOURS OF OPERATION

7:30 a.m. ET – System begins accepting orders.

9:30 a.m. ET – System begins disseminating imbalance and price information for the opening auction.

9:30 a.m. ET – System begins executing orders.

4:00 p.m. ET – System stops accepting and executing equity options orders.

4:15 p.m. ET – System stops accepting and executing ETF and Index Options orders.

OPENING

- The PHLX Opening Process utilizes the Primary Listing Market for the Underlying Security.
- **Open Delay** – 30 seconds - A delay imposed if at least two XL participants or the specialist have not submitted quotes and the market for the underlying has an opening trade or quote. *Rule 1017(d)(iii)*
- **Quality Opening Market Differentials Table** – The table of values defined as an acceptable bid/ask differential in order to establish a “quality opening market.” *Rule 1017(j)(1)*

Non-Penny Issues:

| Price low end of range | Price high end of range | Maximum bid/ask differential |
|------------------------|-------------------------|------------------------------|
| \$0.00 | \$1.00 | \$0.15 |
| \$1.01 | \$2.00 | \$0.22 |
| \$2.01 | \$3.00 | \$0.30 |
| \$3.01 | \$5.00 | \$0.45 |
| \$5.01 | \$7.00 | \$0.60 |
| \$7.01 | \$10.00 | \$0.75 |
| \$10.01 | \$20.00 | \$0.90 |
| \$20.01 | \$30.00 | \$1.20 |
| \$30.01 | \$40.00 | \$1.50 |
| \$40.01 | 40.01+ | \$2.25 |

Standard Penny Issues (excluding SPY/IWM/QQQQ):

| Price low end of range | Price high end of range | Maximum bid/ask differential |
|------------------------|-------------------------|------------------------------|
| \$0.00 | \$1.00 | \$0.10 |
| \$1.01 | \$2.00 | \$0.10 |
| \$2.01 | \$3.00 | \$0.14 |
| \$3.01 | \$5.00 | \$0.20 |

| | | |
|---------|----------|--------|
| \$5.01 | \$7.00 | \$0.30 |
| \$7.01 | \$10.00 | \$0.40 |
| \$10.01 | \$15.00 | \$0.60 |
| \$15.01 | \$20.00 | \$0.80 |
| \$20.01 | \$30.00 | \$1.20 |
| \$30.01 | \$40.00 | \$1.60 |
| \$40.01 | \$40.01+ | \$2.00 |

Special Penny Issues (SPY/IWM/QQQQ)

| Price low end of range | Price high end of range | Maximum bid/ask differential |
|------------------------|-------------------------|------------------------------|
| \$0.00 | \$0.40 | \$0.06 |
| \$0.41 | \$1.00 | \$0.10 |
| \$1.01 | \$2.00 | \$0.12 |
| \$2.01 | \$3.00 | \$0.14 |
| \$3.01 | \$5.00 | \$0.18 |
| \$5.01 | \$7.00 | \$0.24 |
| \$7.01 | \$10.00 | \$0.40 |
| \$10.01 | \$15.00 | \$0.60 |
| \$15.01 | \$20.00 | \$0.80 |
| \$20.01 | \$30.00 | \$1.00 |
| \$30.01 | \$40.00 | \$1.20 |
| \$40.01 | \$40.01+ | \$1.60 |

- ◆ **Imbalance Timer** – 500 milliseconds – Amount of time the XL system may wait before opening an option with an imbalance after broadcasting an Imbalance Message. *Rule 1017(k)(A)*
- ◆ **Opening Quote Range Table** – The table of values added to the offer and subtracted from the bid to establish PHLX's maximum Opening Quote Range. *Rule 1017(j)(1)*

Non-Penny Issues:

| Price low end of range | Price high end of range | Acceptable range (highest bid – X or lowest ask + X) | Range Multiplier for options that expire >9 months away |
|------------------------|-------------------------|--|---|
| \$0.00 | \$1.00 | \$0.10 | 1.5X |
| \$1.01 | \$2.00 | \$0.15 | 1.5X |
| \$2.01 | \$3.00 | \$0.20 | 1.5X |
| \$3.01 | \$5.00 | \$0.30 | 1.5X |
| \$5.01 | \$7.00 | \$0.40 | 1.5X |
| \$7.01 | \$10.00 | \$0.50 | 1.5X |
| \$10.01 | \$20.00 | \$0.60 | 1.5X |
| \$20.01 | \$30.00 | \$0.80 | 1.5X |
| \$30.01 | \$40.00 | \$1.00 | 1.5X |
| \$40.01 | + | \$1.50 | 1.5X |

Standard Penny Issues (excluding SPY/IWM/QQQQ):

| Price low end of range | Price high end of range | Acceptable range (highest bid – X or lowest ask + X) | Acceptable Range for options that expire >9 months away |
|------------------------|-------------------------|--|---|
| \$0.00 | \$1.00 | \$0.05 | \$0.10 |
| \$1.01 | \$2.00 | \$0.05 | \$0.14 |
| \$2.01 | \$3.00 | \$0.07 | \$0.18 |
| \$3.01 | \$5.00 | \$0.10 | \$0.40 |
| \$5.01 | \$7.00 | \$0.15 | \$0.50 |
| \$7.01 | \$10.00 | \$0.20 | \$0.60 |
| \$10.01 | \$15.00 | \$0.30 | \$0.75 |
| \$15.01 | \$20.00 | \$0.40 | \$0.90 |
| \$20.01 | \$30.00 | \$0.60 | \$1.20 |
| \$30.01 | \$40.00 | \$0.80 | \$1.50 |
| \$40.01 | + | \$1.00 | \$2.25 |

Special Penny Issues (SPY/IWM/QQQQ)

| Price low end of range | Price high end of range | Acceptable range (highest bid – X or lowest ask + X) | Range Multiplier for options that expire >9 months away |
|------------------------|-------------------------|--|---|
| \$0.00 | \$0.40 | \$0.03 | 2.0X |
| \$0.41 | \$1.00 | \$0.05 | 2.0X |
| \$1.01 | \$2.00 | \$0.06 | 2.0X |
| \$2.01 | \$3.00 | \$0.07 | 2.0X |
| \$3.01 | \$5.00 | \$0.09 | 2.0X |
| \$5.01 | \$7.00 | \$0.12 | 2.0X |
| \$7.01 | \$10.00 | \$0.20 | 2.0X |
| \$10.01 | \$15.00 | \$0.30 | 1.5X |
| \$15.01 | \$20.00 | \$0.40 | 1.5X |
| \$20.01 | \$30.00 | \$0.50 | 1.5X |
| \$30.01 | \$40.00 | \$0.60 | 1.5X |
| \$40.01 | + | \$0.80 | 1.5X |

- ◆ **Number of Imbalance Process Iterations Before an Opening with an Imbalance** – 4 iterations - Number of times the system will repeat the imbalance process before opening with a remaining imbalance. *Rule 1017(k)(C)(3)*
- ◆ **Duration to Display Orders in the PHLX Quote Before Cancelling Them Back to the Firm** – 0 seconds - Amount of time unexecuted contracts from the imbalance, which were not traded or routed, will be displayed in the PHLX quote at the opening price prior to being cancelled back to the entering participant. *Rule 1017(k)(C)(5)*

ROUTING

- ◆ **Opening Route Timer** – 1 second - Amount of time the system waits before routing to an away market as part of the opening process. *Rule 1017(k)(C)(2)*

- **Route Timer** – 200 milliseconds - Amount of time the system will allow XL participants and other market participants to interact with a FIND or SRCH order before the order is routed to an away market during an during normal trading. *Rule 1080(m)(iv)(B) and (C)*

QUOTE EXHAUST & ACCEPTABLE TRADE RANGE

- **Quote Exhaust Timer** – 200 milliseconds - Amount of time after a quote has been exhausted during which any XL participant may submit quotes, sweeps or orders to allow possible price improvement before PHLX trades at the next available price. *Rule 1082(a)(ii)(B)(3)(a)*
- **Acceptable Trade Range (ATR) Refresh Period** – 200 milliseconds - Amount of time an order or quote will be posted at the boundary price of an ATR to allow the market to refresh before continuing to execute at more aggressive prices.
- **Acceptable Range Table** – The table of values added or subtracted from the reference price to establish PHLX's Acceptable Range for executions of remaining contracts from an initiating quote or order. These tables are used for both Quote Exhaust and ATR. *Rule 1082(a)(ii)(B)(3)(f)*

Non-Penny Issues:

| Price low end of range | Price high end of range | Acceptable Range from Reference Price | Acceptable Range for options that expire >9 months away |
|------------------------|-------------------------|---------------------------------------|---|
| \$0.00 | \$1.00 | \$0.05 | \$0.05 |
| \$1.01 | \$2.00 | \$0.05 | \$0.05 |
| \$2.01 | \$3.00 | \$0.10 | \$0.15 |
| \$3.01 | \$5.00 | \$0.10 | \$0.15 |
| \$5.01 | \$7.00 | \$0.15 | \$0.20 |
| \$7.01 | \$10.00 | \$0.15 | \$0.20 |
| \$10.01 | \$20.00 | \$0.20 | \$0.30 |
| \$20.01 | \$30.00 | \$0.30 | \$0.45 |
| \$30.01 | \$40.00 | \$0.50 | \$0.75 |
| \$40.01 | + | \$0.50 | \$0.75 |

Standard Penny Issues (excluding SPY/IWM/QQQQ):

| Price low end of range | Price high end of range | Acceptable Range From Reference Price | Acceptable Range for options that expire >9 months away |
|------------------------|-------------------------|---------------------------------------|---|
| \$0.00 | \$1.00 | \$0.05 | \$0.10 |
| \$1.01 | \$2.00 | \$0.05 | \$0.10 |
| \$2.01 | \$3.00 | \$0.07 | \$0.14 |
| \$3.01 | \$5.00 | \$0.10 | \$0.20 |
| \$5.01 | \$7.00 | \$0.15 | \$0.30 |
| \$7.01 | \$10.00 | \$0.20 | \$0.40 |
| \$10.01 | \$15.00 | \$0.30 | \$0.45 |
| \$15.01 | \$20.00 | \$0.40 | \$0.60 |
| \$20.01 | \$30.00 | \$0.60 | \$0.90 |
| \$30.01 | \$40.00 | \$0.80 | \$1.20 |
| \$40.01 | + | \$1.00 | \$1.50 |

Special Penny Issues (SPY/IWM/QQQQ)

| Price low end of range | Price high end of range | Acceptable Range From Reference Price | Acceptable Range for options that expire >9 months away |
|------------------------|-------------------------|---------------------------------------|---|
| \$0.00 | \$0.40 | \$0.03 | \$0.06 |
| \$0.41 | \$1.00 | \$0.05 | \$0.10 |
| \$1.01 | \$2.00 | \$0.06 | \$0.12 |
| \$2.01 | \$3.00 | \$0.07 | \$0.14 |
| \$3.01 | \$5.00 | \$0.09 | \$0.18 |
| \$5.01 | \$7.00 | \$0.12 | \$0.24 |
| \$7.01 | \$10.00 | \$0.20 | \$0.40 |
| \$10.01 | \$15.00 | \$0.30 | \$0.45 |
| \$15.01 | \$20.00 | \$0.40 | \$0.60 |
| \$20.01 | \$30.00 | \$0.50 | \$0.75 |
| \$30.01 | \$40.00 | \$0.60 | \$0.90 |
| \$40.01 | + | \$0.80 | \$1.20 |

- **Iterations of ATR and Quote Exhaust** – 5 iterations – Number of iterations that ATR and/or Quote Exhaust may occur before an aggressively priced order or quote will be cancelled back to the sending participant.

RISK PROTECTION THRESHOLDS

- **Market Order Spread Protection** - \$5.00 – Maximum bid/ask differential permissible for a Market Order to be accepted by the trading system; if the bid/ask differential of the NBBO and internal BBO is wider than \$5.00, a Market Order submitted into the system will be rejected; this protection is not applicable to complex orders.

COMPLEX

Complex Opening Delay Timer – 5 seconds – Amount of time the system will wait after the last options component of a complex order strategy has opened before initiating an opening Complex Auction.

Complex Order Opening Process (COOP) Duration – 250 milliseconds** – Amount of time participants have to submit interest responding to a complex opening auction notification. *Rule 1098(d)(A)*

Complex Live Auction (COLA) Duration – 100 milliseconds – Amount of time participants have to submit interest responding to a complex auction notification. *Rule 1098(e)(iii)*.

Acceptable Complex Execution Parameter (ACE) – greater of \$0.05 or 5% for non-stock tied orders; 0.5% for stock tied orders - A price range, based on the cNBBO, outside of which a Complex Order will not be executed. *Rule 1098(h)(i)*

Strategy Price Protection (SPP) - \$0.02 – Acceptable range for Vertical Spreads to trade below zero or above the difference in the strikes; Acceptable range for Time Spreads to trade below zero. *Rule 1098(g)(i)(C)*

Butterfly Spread Protection Maximum Buffer - \$0.00 and 0% – Acceptable range for a Butterfly Spread to be above the intrinsic value of the spread defined as the difference in the strike prices of the middle and outer leg for a Butterfly spread. *Rule 1098(i)(i)(a)*

Butterfly Spread Protection Minimum Buffer - \$0.00– Acceptable range for a Butterfly Spread to trade below zero. *Rule 1098(i)(i)(b)*

Box Spread Protection Maximum Buffer - \$0.00 and 0% – Acceptable range for a Box Spread to be above the intrinsic value of the spread defined as the difference in the strike prices of the middle and outer leg for a Box spread. *Rule 1098(j)(i)(a)*

Box Spread Protection Minimum Buffer - \$0.00– Acceptable range for a Box Spread to trade below zero. *Rule 1098(j)(i)(b)*

*No COLAs will begin with less than 10 seconds remaining in the trading day.

PRICE IMPROVEMENT (PIXL)

PIXL Auction Duration – 100 milliseconds – Amount of time participants have to submit interest responding to a price improvement (PIXL) auction notification. *Rule 1080(n)*

For more information, contact Transaction Services U.S. Market Sales at +1 800 846 0477 (Option #2).