

Wyckoff Spring Reversal

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Price-Action Reversal	H1 – H4	www.algotbot.live

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Overview

Wyckoff Spring Reversal is a pure price-action Expert Advisor built on classic Wyckoff range mechanics. It uses *no indicators*. Instead, it frames a trading range from recent price structure and then waits for a **failed liquidity sweep** — a bar that pierces the edge of the range to trip stops, but then snaps back inside before the close. These reversals come in two mirror-image forms:

- **Spring (long):** the signal bar pokes *below* the range low — sweeping sell-side liquidity and resting stops — but *closes back inside* the range. The breakdown failed, supply was absorbed, and the EA expects an upward rotation.
- **Upthrust (short):** the signal bar pokes *above* the range high — sweeping buy-side liquidity — but *closes back inside* the range. The breakout failed, demand was absorbed, and the EA expects a downward rotation.

Stops are placed just beyond the sweep wick, where the trade idea is invalidated, and targets are a fixed reward multiple of the measured risk. The EA acts only once per freshly-closed bar and holds at most one position at a time.

Core idea: A genuine breakout holds. When price breaks the range edge and immediately reverses back inside, the move was a stop-hunt rather than a trend — and the trapped traders on the wrong side provide fuel for the reversal.

How It Works

1. Framing the trading range

On each newly completed bar, the EA scans a lookback window of `RangeLookback` bars sitting *behind* the signal bar (shifts `2 ... RangeLookback + 1`). The highest high becomes the **range high** and the lowest low becomes the **range low**. The signal bar itself (shift 1) is deliberately excluded so it can be evaluated as a clean sweep candidate.

```
rangeHigh = highest High over shifts 2 .. RangeLookback+1
rangeLow  = lowest  Low  over shifts 2 .. RangeLookback+1
height    = rangeHigh - rangeLow      // all thresholds scale off this
```

Every threshold below is expressed as a fraction of `height`, so the strategy automatically adapts to the volatility of the instrument and timeframe it is running on. If `height ≤ 0` the bar is skipped.

2. Detecting the sweep — Spring & Upthrust

The signal bar (shift 1, the bar that just closed) must satisfy **all three** conditions of either pattern. No look-ahead is used — the bar is fully closed before it is judged.

SPRING → LONG

- **Sweep:** `Low ≤ rangeLow - (MinPenetrationFrac × height)` — the bar pierces below support.
- **Re-entry:** `Close ≥ rangeLow + (ReentryFrac × height)` — it closes back well inside the range.
- **Conviction:** `Close > Open` — the signal bar itself is bullish.

UPTHRUST → SHORT

- **Sweep:** `High ≥ rangeHigh + (MinPenetrationFrac × height)` — the bar pierces above resistance.
- **Re-entry:** `Close ≤ rangeHigh - (ReentryFrac × height)` — it closes back well inside the range.
- **Conviction:** `Close < Open` — the signal bar itself is bearish.

3. Entry, stop loss and take profit

When a Spring fires, the EA buys at the current **Ask**; when an Upthrust fires, it sells at the current **Bid**. The protective stop is anchored to the sweep wick, and the target is a fixed multiple of the resulting risk.

Component	Spring (Long)	Upthrust (Short)
Entry	Ask	Bid
Stop loss	$\text{signal.Low} - (\text{StopBufferFrac} \times \text{height})$	$\text{signal.High} + (\text{StopBufferFrac} \times \text{height})$
Risk	$\text{entry} - \text{stop}$	$\text{stop} - \text{entry}$
Take profit	$\text{entry} + (\text{RewardRatio} \times \text{risk})$	$\text{entry} - (\text{RewardRatio} \times \text{risk})$

If the computed risk is zero or negative the order is skipped. In the MQL5 build, both stop and target are normalized to the symbol's digit precision before the order is sent.

Worked example — a Spring (long)

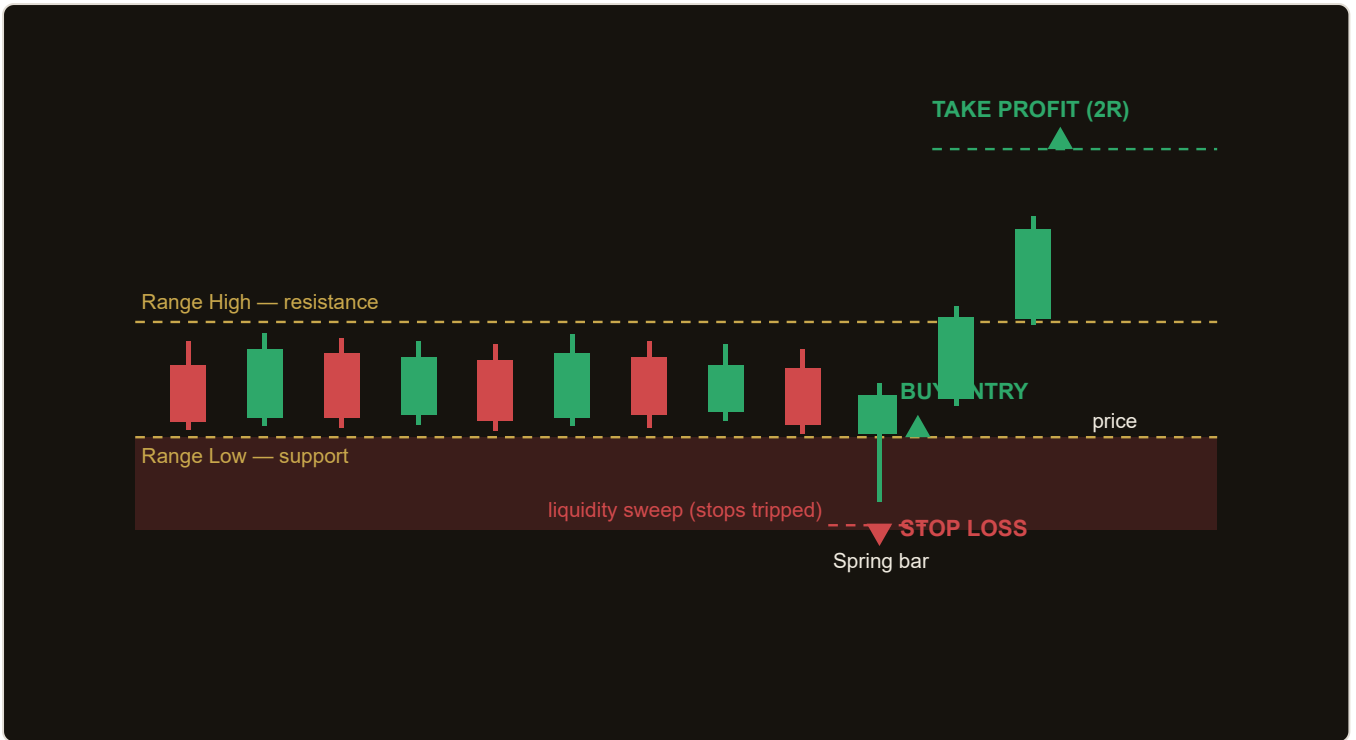
Suppose the 20-bar range runs from a low of `1.09500` to a high of `1.09900`, so `height = 0.00400` (40 pips). With defaults: `minPen = 0.05 × 400 = 2 pips`, `reentry = 0.15 × 400 = 6 pips`, `stopBuf = 0.10 × 400 = 4 pips`. The signal bar dips to `1.09470` (3 pips below support — a valid sweep), then closes bullishly at `1.09580` (8 pips back inside — valid re-entry). The EA buys at the Ask (≈ 1.09585), sets the stop at `1.09470 - 4 pips = 1.09430` (risk ≈ 15.5 pips) and the target at `entry + 2 × risk ≈ 1.09895` .

4. Execution discipline

- **One bar, one decision:** the EA evaluates a signal only when a new bar appears (tracked by the latest bar time), so it never fires repeatedly within the same candle.
- **One position at a time:** if a position tagged with this EA's magic number is already open on the symbol, no new trade is taken until it closes.
- **Warm-up:** trading begins only once at least `RangeLookback + 2` bars of history are available.
- **Exit:** there is no trailing or time-based exit — each position runs to its stop loss or take profit.

Strategy in Action

The illustration below shows an example of how the strategy identifies a setup and triggers its entry and exit. This is a simplified, illustrative example for educational purposes — not real market data. It depicts a **Spring (long)**: price sweeps below the range low to trip stops, then closes back inside, triggering a long with the stop beyond the sweep wick and the target at a 2R multiple.



Illustrative example only. Actual market behaviour varies. (Vertical distances are not drawn to scale.)

Parameters

Every parameter below maps directly to an input in both the C# strategy and the MQL5 Expert Advisor. The fractional thresholds are multiplied by the measured range height, so they behave consistently across symbols and timeframes.

Parameter	Default	Description
RangeLookback	20	Number of completed bars used to frame the trading range (shifts 2... lookback+1, excluding the signal bar). Range 10–60, step 5.
MinPenetrationFrac	0.05	Minimum poke beyond the range edge required for the sweep to count, as a fraction of range height. Range 0.00–0.40, step 0.05.
ReentryFrac	0.15	Minimum distance the signal bar must close back inside the range, as a fraction of height. Range 0.00–0.50, step 0.05.
StopBufferFrac	0.10	Extra room placed beyond the sweep wick for the stop loss, as a fraction of height. Range 0.00–0.50, step 0.05.
RewardRatio	2.0	Take-profit distance as a multiple of the measured risk (entry to stop). Range 1.0–4.0, step 0.5.
Lots	0.10	Fixed trade volume in lots. Range 0.01–1.0, step 0.05.
Magic	7021	EA magic number used to tag and identify this strategy's positions on the symbol.

Recommended Settings

Wyckoff range behaviour is cleanest on liquid instruments with well-defined consolidation. The defaults are a balanced starting point; tune them to the instrument's character and your risk appetite.

Context	Suggested	Notes
Symbols	Major FX pairs, gold (XAUUSD), index CFDs	Deep liquidity produces genuine stop-hunts and clean re-entries.
Timeframe	H1 – H4	Long enough to form real ranges; short enough for multiple setups.
RangeLookback	20 (try 15–30)	Lower = more reactive ranges; higher = stricter, more significant levels.
RewardRatio	2.0	Reversals can run; 2.0–3.0 suits the structure. Lower it for choppy markets.
Lots	Sized to ≤ 1–2% risk	Because risk varies with sweep depth, position size with your account in mind.

Tuning tip: Raising `MinPenetrationFrac` and `ReentryFrac` filters for stronger, more decisive sweeps — fewer trades, higher conviction. Lowering them captures shallower springs and upthrusts at the cost of more noise. Always validate changes with a Strategy Tester run on out-of-sample data before going live.

How to Install on MetaTrader 5

- 1 Copy `WyckoffSpringReversal.ex5` to your MT5 `MQL5\Experts\` folder
- 2 Restart MetaTrader 5 and refresh the Navigator panel
- 3 Drag the EA onto a chart matching the recommended symbol and timeframe
- 4 Configure the input parameters and click **OK**
- 5 Enable **Algo Trading** in the MT5 toolbar

Before going live: run `WyckoffSpringReversal` in the MT5 Strategy Tester across several months of history and on a demo account first. Confirm the range-and-sweep behaviour matches your expectations on your chosen symbol before risking real capital.

Risk Warning

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