

Coiled Range Breakout

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Volatility-Squeeze Breakout

TIMEFRAME

M30 / H1

WEBSITE

www.algotbot.live

⚠ Important Disclaimer This document is for educational and informational purposes only. It does not constitute financial or investment advice. Trading forex, CFDs, and other leveraged instruments involves substantial risk of loss and is not suitable for all investors. Past backtest performance does not guarantee future results. Never trade with capital you cannot afford to lose.

Overview

Coiled Range Breakout is a pure price-action Expert Advisor for MetaTrader 5. It uses **no indicators of any kind** — no moving averages, RSI, ATR, or Bollinger Bands. Every decision is derived from raw candle highs, lows, opens, and closes only.

The strategy is built on a simple market truth: price alternates between **expansion** and **contraction**. When several bars become trapped inside a tight horizontal box right after a stretch of much wider bars, energy is being stored — like a coiled spring. Sooner or later that range resolves with a decisive thrust, and the first close out of the box usually marks the direction of the next leg. The EA lets the market pick the side and rides the release.

Because risk is defined **structurally** — relative to the box itself rather than fixed points or pips — the logic is fully self-scaling and works on any symbol or timeframe without re-tuning point values. Its natural home is a liquid major such as **EURUSD** or **GBPUSD** on **M30** or **H1**.

Note: Demanding both genuine compression (a tight coil) *and* a decisive expansion close filters out most of the aimless pokes that plague naive range-breakout systems. The market must commit before the EA does.

How It Works

Building the box (multi-bar, not a single candle)

On every newly-closed bar the EA reconstructs three regions of recent history:

- **The Coil** — the `CoilBars` closed bars sitting immediately before the signal bar. **BoxHigh** is the highest high of the coil, **BoxLow** is the lowest low, and **BoxHeight = BoxHigh – BoxLow**.
- **The Baseline** — the `BaselineBars` bars that came *before* the coil. Its range (highest high minus lowest low over that window) represents the market's "normal" swing.
- **The Signal Bar** — the most recently closed bar, which the EA tests for a breakout.

The squeeze gate

The coil only counts as a genuine squeeze when it is compressed relative to that normal swing:

$$\text{BoxHeight} \leq \text{CompressionRatio} \times \text{BaselineRange}$$

With the default `CompressionRatio = 0.50`, the coil must be at most half as tall as the recent baseline swing. If the box is too wide, no trade is considered.

Entry — the spring releasing

Once a valid squeeze is confirmed, the signal bar must also show real **range expansion** — its own high-low range must be at least `ExpansionMult × BoxHeight`. The direction is chosen by the market:

- **LONG** — the signal bar closes **strictly above BoxHigh**, is bullish (close > open), and expands by the required multiple. The EA buys at the Ask — the spring releasing upward.
- **SHORT** — the mirror image: the signal bar closes **strictly below BoxLow**, is bearish (close < open), and shows the same expansion. The EA sells at the Bid — the spring releasing downward.

Exit — structural stop and reward-based target

Risk is anchored to the box, never to fixed pips. The stop sits just beyond the **opposite** edge of the whole coil, buffered by a fraction of the box height:

$\text{buffer} = \text{StopBufferFrac} \times \text{BoxHeight}$

LONG : $\text{Stop Loss} = \text{BoxLow} - \text{buffer}$
 $\text{risk} = \text{Entry} - \text{Stop Loss}$
 $\text{Take Profit} = \text{Entry} + \text{RewardRatio} \times \text{risk}$

SHORT: $\text{Stop Loss} = \text{BoxHigh} + \text{buffer}$
 $\text{risk} = \text{Stop Loss} - \text{Entry}$
 $\text{Take Profit} = \text{Entry} - \text{RewardRatio} \times \text{risk}$

If price falls back through the coil, the breakout is invalidated and the structural stop takes the trade out. The target is a fixed reward-to-risk multiple of that stop distance (default $\text{RewardRatio} = 2.00$), letting the post-squeeze expansion run.

Worked example (LONG)

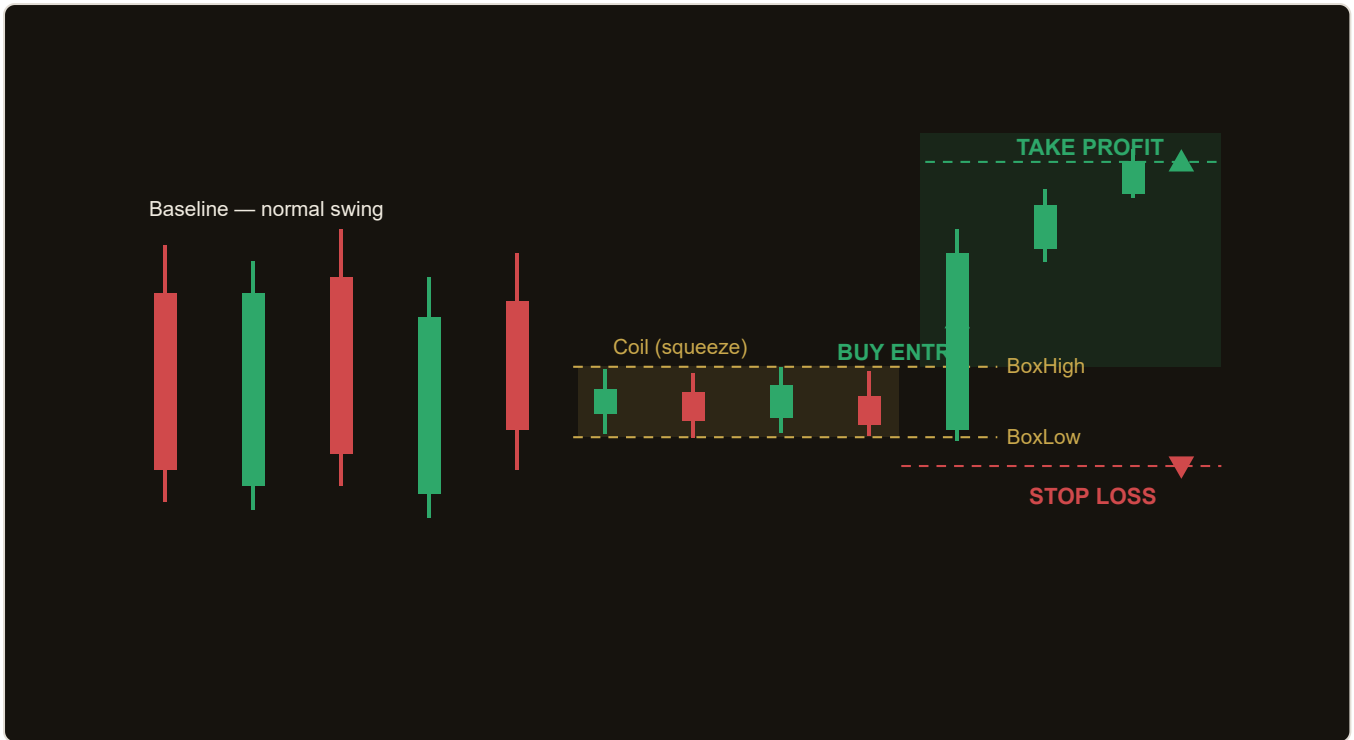
Suppose the coil forms a box with $\text{BoxHigh} = 1.10250$ and $\text{BoxLow} = 1.10100$, so $\text{BoxHeight} = 0.00150$. The signal bar closes at 1.10320 (above BoxHigh , bullish) with a high-low range of 0.00190 — well over 1.00×0.00150 , so expansion passes. With $\text{StopBufferFrac} = 0.25$, the buffer is 0.000375 , placing the stop at $1.10100 - 0.000375 = 1.100625$. If the entry (Ask) is 1.10330 , risk is roughly 0.00268 and, at $\text{RewardRatio} = 2.00$, the target sits about 0.00535 above entry near 1.10865 .

Trade management rules

- **One position per magic number** — while a trade is open, the structural stop and target manage the exit; no new entries are taken until it closes.
- **Acts once per closed bar** — the EA evaluates only on a new-bar event, never intrabar, so signals are stable and repeatable.
- **History requirement** — the EA needs at least $\text{BaselineBars} + \text{CoilBars} + 2$ bars before it will trade.

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.



Illustrative example only. Actual market behaviour varies.

Parameters

Parameter	Default	Description
CoilBars	4	Number of bars that form the tight consolidation box (the coil). Range 2–10, step 1.
BaselineBars	20	Window of bars before the coil used to measure the market's "normal" range. Range 10–60, step 5.
CompressionRatio	0.50	The coil box height must be at most this fraction of the baseline range to qualify as a squeeze. Range 0.20–0.90, step 0.05.
ExpansionMult	1.00	The signal bar's own high-low range must be at least this multiple of the box height (proof of expansion). Range 0.50–3.00, step 0.10.
StopBufferFrac	0.25	Stop placed beyond the opposite box edge, expressed as a fraction of the box height. Range 0.00–1.00, step 0.05.
RewardRatio	2.00	Take-profit distance as a multiple of the structural stop distance (reward-to-risk). Range 1.00–5.00, step 0.25.
Lots	0.10	Fixed trade volume in lots. Range 0.01–1.00, step 0.05.
Magic	8801	Magic number used to identify and manage this EA's positions. Range 0–9,999,999, step 1.

Recommended Settings

The defaults are tuned for a liquid major pair on an intraday timeframe, where the alternation between contraction and expansion is most reliable.

- **Symbol:** EURUSD or GBPUSD (liquid majors with tight spreads).
- **Timeframe:** M30 or H1 — long enough for genuine coils to form, short enough to catch the release.
- **CoilBars / BaselineBars:** the 4 / 20 default gives a clear contrast between the tight box and the recent swing. Widen the baseline for slower instruments.
- **CompressionRatio:** lower values (e.g. 0.35) demand tighter coils and fewer, higher-quality signals; higher values trade more often.
- **ExpansionMult:** raise toward 1.50–2.00 to insist on a more violent breakout candle and avoid weak pokes.
- **RewardRatio:** 2.00 balances hit-rate against payoff; increase only if your instrument tends to trend strongly post-squeeze.

Tip: Because every threshold is relative (ratios and multiples of measured range), the same settings transfer across symbols and timeframes without converting points or pips. Always forward-test on a demo account before going live.

How to Install on MetaTrader 5

- 1 Copy `CoiledRangeBreakout.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

Risk Warning

Trading foreign exchange, CFDs, and other leveraged financial instruments involves substantial risk of loss and is not suitable for all investors. The strategies and tools described in this document are provided for **educational purposes only** and do not constitute financial advice, investment recommendations, or solicitation to trade. Always consult a qualified financial adviser before making trading decisions. Past backtest performance is not indicative of future results.