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# Velocity Exhaustion Reversal

Expert Advisor Documentation

| PLATFORM | TYPE | TIMEFRAME | WEBSITE |
| --- | --- | --- | --- |
| MetaTrader 5 (MT5) | Mean Reversion | M15 – H1 | www.algobot.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

**Velocity Exhaustion Reversal** is a mean-reversion "snapback" Expert Advisor. It is built on a simple market observation: when price is shoved too far from its mean *too fast*, the one-sided flow driving the move tends to run out of fuel and price reverts back toward equilibrium.

The strategy measures exhaustion along two independent axes and only acts when **both** are extreme at the same time:

- **Spatial exhaustion** — how stretched price is from a 50-period EMA, measured in ATR units (`devAtr`). A large stretch means price is unusually far from its mean.
- **Temporal exhaustion** — how violent the most recent impulse was, measured as ATR-normalised velocity (`nv`) over a short lookback. A large velocity means the move happened unusually fast.

When both are extreme *and* the newest closed bar prints a reclaim candle against the impulse (a deceleration signal), the EA fades the move back toward the mean using a fixed ATR-based stop and a reward:risk take profit. All indicators (EMA, ATR, velocity and swing extremes) are computed on a single timeframe from freshly closed bars only — there is no intrabar repainting.

> **Core idea:** stretched *far* (space) + stretched *fast* (time) + a reclaim candle (deceleration) → fade the exhausted move back to the mean.

## How It Works

### Measured signals (on the newest closed bar)

- **EMA (mean reference):** an exponential moving average of closes over `EmaPeriod` bars, seeded with a simple average.
- **ATR (volatility unit):** the average true range over `AtrPeriod` bars — the common denominator that normalises both stretch and velocity so thresholds are volatility-adaptive.
- **Spatial stretch:** `devAtr = (close − EMA) / ATR` — signed distance of price from its mean, in ATR units.
- **Velocity:** `velocity = close − close[RocPeriod ago]`, then `nv = velocity / ATR` — the recent impulse expressed in ATR units.
- **Swing extremes:** the lowest low / highest high over the last `SwingLookback` bars, used to anchor a protective stop.

### Long entry — fade an exhausted down thrust

The EA opens a **Buy** when every condition below is true on the newest closed bar:

- **Stretched below the mean:** `devAtr ≤ −StretchAtr` (price is far under the EMA).
- **Violent down-velocity:** `nv ≤ −VelThreshold` (the drop was fast).
- **Reclaim / deceleration:** the bar is bullish ( `close > open` ) *and* closes above the prior bar's high ( `close > prevHigh` ) — sellers are losing control.

### Short entry — fade an exhausted up thrust

The EA opens a **Sell** under the mirror conditions:

- **Stretched above the mean:** `devAtr ≥ StretchAtr`.
- **Violent up-velocity:** `nv ≥ VelThreshold`.
- **Break-down / deceleration:** the bar is bearish ( `close < open` ) *and* closes below the prior bar's low ( `close < prevLow` ).

### Stop loss, take profit and position sizing

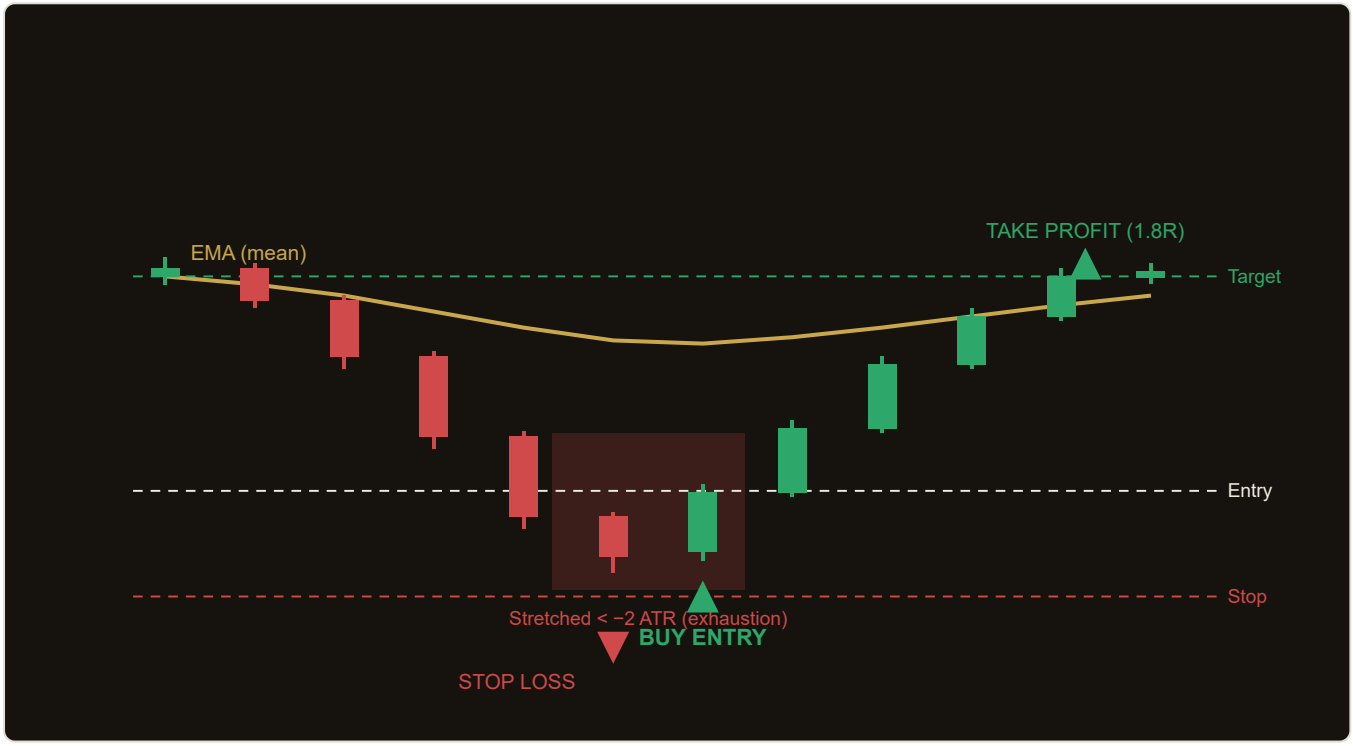
- **Stop loss (long):** the *farther* of `entry − SlAtr × ATR` and `swingLow − 0.10 × ATR`. The stop is placed beyond the recent swing so a genuine reversal is given room; the ATR floor guarantees a minimum distance.
- **Stop loss (short):** the mirror — the *farther* of `entry + SlAtr × ATR` and `swingHigh + 0.10 × ATR`.
- **Take profit:** a fixed reward:risk multiple. `TP = entry ± TpReward × risk`, where `risk` is the actual entry-to-stop distance. With the default `TpReward = 1.8`, every trade targets 1.8× its risk.
- **Volume:** a fixed lot size ( `Lots` ).

- **One position at a time:** a new signal is ignored while a position tagged with this EA's magic number is already open.

> **No repainting:** a static new-bar check means every decision is made once, on a bar that has already closed. Signals never change after the fact, so live behaviour matches the backtest.

## 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.*

**Reading the illustration**

Price detaches from the EMA in a fast, one-sided sell-off (red candles) until it is stretched more than 2 ATR below the mean — both spatial and temporal exhaustion are extreme. The next bar is a bullish *reclaim* candle that closes above the prior bar's high, confirming sellers have decelerated. The EA buys at that close, places the stop just below the swing low, and targets 1.8× the risk as price snaps back toward the EMA.

## Parameters

| Parameter | Default | Description |
|---|---|---|
| **EmaPeriod** | `50` | EMA period used as the mean reference. Range 20–200, step 5. |
| **AtrPeriod** | `14` | ATR period — the volatility unit that normalises stretch and velocity. Range 7–30, step 1. |
| **RocPeriod** | `5` | Velocity lookback in bars (how far back the impulse is measured). Range 2–15, step 1. |
| **StretchAtr** | `2.0` | Spatial stretch threshold in ATR units. Larger = only fade more extreme distances from the mean. Range 1.0–4.0, step 0.25. |
| **VelThreshold** | `1.5` | Temporal velocity threshold in ATR units. Larger = require a more violent impulse before fading. Range 0.5–4.0, step 0.25. |
| **SlAtr** | `1.5` | Stop distance in ATR units (a floor; the swing extreme may push the stop farther). Range 0.5–4.0, step 0.25. |
| **TpReward** | `1.8` | Take-profit reward:risk multiple applied to the entry-to-stop distance. Range 0.8–4.0, step 0.1. |
| **SwingLookback** | `5` | Number of bars in the swing-extreme window used to anchor the protective stop. Range 3–20, step 1. |
| **Lots** | `0.10` | Fixed trade volume in lots. Range 0.01–1.0, step 0.05. |
| **Magic** | `20260708` | Strategy tag / magic number identifying this EA's positions (one position per tag). |

## Recommended Settings

The strategy is designed for a single timeframe and clean, liquid instruments where mean reversion is common. A sensible starting point:

- **Instruments:** major FX pairs (e.g. EUR/USD, GBP/USD) and index CFDs with tight spreads.
- **Timeframe:** M15 to H1 — low enough to see frequent impulses, high enough that each bar carries meaningful information.
- **Defaults:** the shipped values (`StretchAtr = 2.0`, `VelThreshold = 1.5`, `SlAtr = 1.5`, `TpReward = 1.8`) are a balanced baseline.

**Tuning tips:** raise `StretchAtr` and `VelThreshold` for fewer, higher-conviction fades in choppy conditions; lower them to trade more often in calmer markets. If stops feel too tight, increase `SlAtr` or `SwingLookback` so the stop sits farther beyond the swing. Always re-optimise per symbol and timeframe on your own broker's data.

**Counter-trend by design.** This EA deliberately fades strong moves. In a persistent, high-momentum trend an exhausted-looking impulse can keep going, so stops will be hit. Prefer ranging or mean-reverting regimes, size conservatively, and validate on out-of-sample data before trading live.

## How to Install on MetaTrader 5

1. Copy `VelocityExhaustionReversal.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.