Vertical Horizontal Filter Breakout

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Regime-Gated Trend Breakout	H1–H4 (any single TF)	www.algobot.live

Overview

Vertical Horizontal Filter Breakout is a trend-following breakout Expert Advisor for MetaTrader 5. It trades Donchian channel breakouts, but with one crucial condition: it only takes a breakout when the market is *verifiably trending*. This regime filter is the heart of the strategy.

Most channel breakouts fail inside a ranging, choppy market — price pokes past the fence and immediately snaps back. To avoid these false signals, the EA uses the **Vertical Horizontal Filter (VHF)**, a classic indicator that measures how directional recent price action has been:

```
VHF = |HighestClose(n) − LowestClose(n)|  /  ∑|Close[i] − Close[i−1]|
```

The numerator is the **net directional travel** (how far price actually went); the denominator is the **total path length** (how far it walked to get there). When price marches steadily in one direction, the two are similar and VHF is high — a trend. When price whipsaws back and forth, the path is long relative to the net move and VHF is low — chop. The EA arms itself only when VHF is high *and rising*, then waits for a Donchian breakout to enter.

The core idea: A breakout is only worth taking when a trend already exists to carry it. VHF answers “is this market trending right now?” before the Donchian channel answers “has price broken out?” Both must agree.

How It Works

On every completed bar, the EA evaluates four independent conditions. Signals are computed on the just-closed bar (shift 1) and the channel is measured from the bars *before* it, so the logic never repaints.

1. Regime Gate (VHF filter)

The market is considered tradeable only when both of the following hold:

- **Trend present:** current VHF ≥ `VhfTrendThreshold` (default 0.35).
- **Trend strengthening:** current VHF is greater than its value `VhfSlopeBars` bars ago (default 3) — i.e. the filter is rising, not fading.

If either condition fails, no new position is opened, regardless of any breakout.

2. Breakout Entry (Donchian channel)

A Donchian channel is built from the highest high and lowest low of the `ChannelPeriod` bars immediately before the signal bar (default 20). A small ATR-based buffer is added to filter marginal pokes:

- **Long:** the just-closed bar closes *above* the channel high + `BreakoutAtrBuffer` × ATR.
- **Short:** the just-closed bar closes *below* the channel low − `BreakoutAtrBuffer` × ATR.

A fresh position is opened only when the regime gate is satisfied *and* a breakout in that direction is confirmed. Longs enter at the Ask; shorts enter at the Bid.

3. Reversal on Regime Flip

The EA holds a single position per magic number. If price produces an *opposite* breakout while a trade is open (a long is running and a short breakout closes), the open position is closed immediately. The EA then waits for that position to clear before considering a new entry.

4. Risk Management (ATR stop, target & trailing)

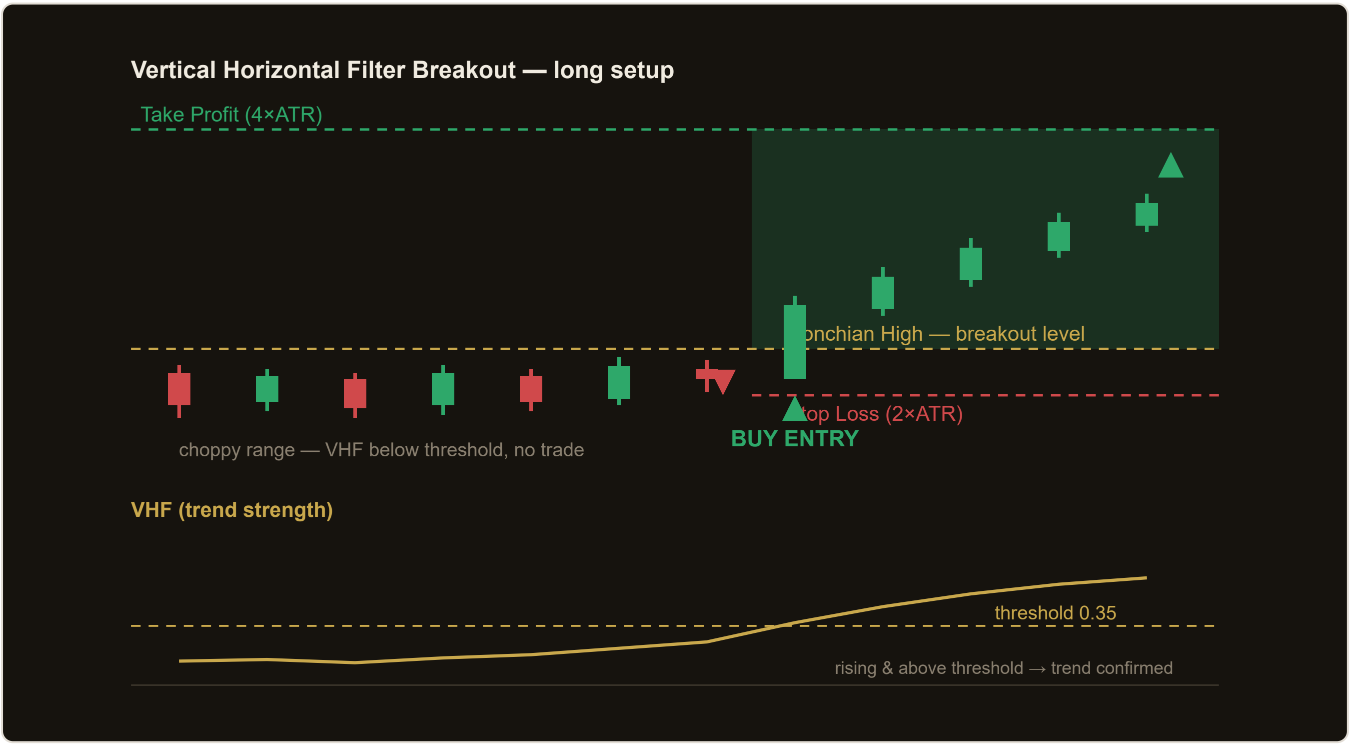
Every position is protected with ATR-scaled levels calculated at entry:

- **Stop loss:** `SlAtrMult` × ATR from entry (default 2.0×).
- **Take profit:** `TpAtrMult` × ATR from entry (default 4.0×) — a 1:2 risk-to-reward geometry by default.
- **Trailing stop:** if `TrailAtrMult` > 0, an ATR trailing stop follows price on every tick, tightening the stop only in the trade's favour so trend winners can run. Set it to 0 to disable trailing.

> **No repaint:** the VHF, ATR and Donchian levels are all read from closed bars (shift 1 and older). The breakout is judged on a bar that has already finished forming, so a signal never changes after the fact.

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.

In the sequence above, price first chops sideways beneath the Donchian high while VHF sits below its threshold — the regime gate keeps the EA flat. As the trend develops, VHF climbs above 0.35 and turns upward. The breakout bar then closes decisively above the channel high plus the ATR buffer, triggering the **long entry**. The stop sits 2×ATR below, the target 4×ATR above, and the ATR trailing stop advances as the trend carries price toward take profit.

Parameters

Parameter	Default	Description
VhfPeriod	`28`	Lookback for the Vertical Horizontal Filter, in bars. Range 8–60 (step 2). Larger values smooth the regime read; smaller values react faster.
VhfTrendThreshold	`0.35`	Minimum VHF value to consider the market "trending" (0–1). Range 0.20–0.60 (step 0.05). Higher is stricter — fewer but cleaner trends.
VhfSlopeBars	`3`	VHF must exceed its value this many bars ago (rising-trend confirmation). Range 1–10 (step 1).
ChannelPeriod	`20`	Donchian channel lookback, in bars before the signal bar. Range 5–60 (step 1). Wider channels demand larger breakouts.
BreakoutAtrBuffer	`0.10`	Breakout confirmation buffer beyond the channel, as a fraction of ATR. Range 0.0–1.0 (step 0.05). Raise to reject marginal pokes.
AtrPeriod	`14`	ATR lookback used for the buffer, stops, targets and trailing. Range 5–40 (step 1).
SlAtrMult	`2.0`	Stop-loss distance = SlAtrMult × ATR. Range 0.5–5.0 (step 0.5).
TpAtrMult	`4.0`	Take-profit distance = TpAtrMult × ATR. Range 1.0–10.0 (step 0.5). Default gives a 1:2 risk-to-reward.
TrailAtrMult	`2.5`	Trailing-stop distance = TrailAtrMult × ATR. Range 0.0–6.0 (step 0.5). Set to 0 to disable trailing.
Lots	`0.10`	Order volume in lots. Range 0.01–1.0 (step 0.05). Size to your account and risk tolerance.
Magic	`4821`	Magic number identifying this EA's positions, so it manages only its own trades.

> **Tuning tip:** the two most impactful knobs are `VhfTrendThreshold` and `ChannelPeriod`. Raise the threshold in noisy markets to demand a cleaner trend; widen the channel to require larger, more committed breakouts. Adjust one at a time and re-test.

Recommended Settings

The strategy was designed with trending FX majors and index CFDs on intraday-to-swing timeframes in mind. It runs on whatever single timeframe you attach it to — every calculation uses the chart's own timeframe.

- **Instruments:** trending FX majors (EURUSD, GBPUSD, USDJPY) and major indices (US500, NAS100, GER40).
- **Timeframe:** H1 to H4 works well for the default lookbacks; the logic is timeframe-agnostic, so lower or higher frames are viable after re-tuning.
- **Regime filter:** keep `VhfTrendThreshold` at 0.35 as a starting point; lift toward 0.45–0.50 for choppier symbols.
- **Risk:** the default 2×/4× ATR stop/target with a 2.5× ATR trail balances letting winners run against giving back open profit.

Example configuration — EURUSD H1

VhfPeriod 28, VhfTrendThreshold 0.35, VhfSlopeBars 3, ChannelPeriod 20, BreakoutAtrBuffer 0.10, AtrPeriod 14, SlAtrMult 2.0, TpAtrMult 4.0, TrailAtrMult 2.5, Lots 0.10. Always validate on the Strategy Tester with your broker's spread and history before trading live.

Warm-up: the EA needs enough history to compute the VHF slope window, the Donchian channel and the ATR. It stays flat until at least `max(VhfPeriod + VhfSlopeBars + 2, ChannelPeriod + 2, AtrPeriod + 2)` bars are available — expect no trades on the first several dozen bars of a fresh chart.

How to Install on MetaTrader 5

1. Copy `VerticalHorizontalFilterBreakout.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 the EA in the MT5 Strategy Tester across recent history on your chosen symbol and timeframe. Confirm the trade behaviour, spread sensitivity and drawdown match your expectations, then start on a demo account.

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.