Algobot
Maximize Your Profits

Volatility Squeeze Momentum Shift

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Volatility Breakout (Squeeze)	H1 / H4 (configurable)	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

Volatility Squeeze Momentum Shift is a volatility compression & expansion Expert Advisor — a "TTM squeeze" built from first principles. It waits for the market to *coil* (volatility contracts and stores energy), then trades the *directional release* when that stored energy is finally discharged into a fresh trend leg.

The EA fuses three ideas into a single decision: **market structure** (a volatility squeeze detected by comparing two volatility envelopes), **technical indicators** (a momentum oscillator that decides direction), and a **trend filter** (an EMA that blocks counter-trend signals). Risk is handled with ATR-scaled stops and targets, an ATR trailing stop that only ever tightens, and fixed-fractional position sizing that risks a fixed percentage of balance per trade.

Every decision is taken on the **just-completed bar** at the moment a new bar opens, and all inputs are functions of closed bars only — the strategy is fully **non-repainting**. It operates on a single, configurable timeframe: whatever chart you attach it to.

> **Core idea in one line:** when the Bollinger Bands squeeze *inside* the Keltner Channel volatility is compressed; when that squeeze finally breaks, momentum tells you which way the market is about to expand — and that is the trade.

How It Works

1. The Squeeze (compression)

On every completed bar the EA computes two volatility envelopes around a shared SMA basis:

- **Bollinger Band** — SMA basis ± `BbMult` × standard deviation of close.
- **Keltner Channel** — SMA basis ± `KcMult` × ATR.

The market is **in the squeeze** when the Bollinger Band sits *entirely inside* the Keltner Channel:

```
squeezeOn = (upperBB < upperKC) AND (lowerBB > lowerKC)
```

Standard-deviation volatility (Bollinger) is being dwarfed by average-true-range volatility (Keltner) — a hallmark of a quiet, coiling market. The EA counts how many consecutive bars the squeeze has lasted (`squeezeOnCount`).

2. The Release (the trigger)

The actual trade trigger is the bar on which the squeeze turns **OFF** after having been **ON** for at least `MinSqueezeBars` bars:

```
released = prevSqueezeOn AND NOT squeezeOn
trade only if (released AND squeezeLen >= MinSqueezeBars)
```

A long, tight squeeze that finally releases tends to expand hard — that expansion is exactly what this EA is designed to ride. Requiring a minimum squeeze duration filters out shallow, low-energy compressions.

3. Direction & filters

Once a qualifying release is detected, a **momentum oscillator** (the classic TTM momentum base) decides direction. It measures the last close against the average of the Donchian midline and the SMA over `MomentumPeriod`:

```
mom = close − ( (HighestHigh + LowestLow)/2 + SMA ) / 2
```

- **Long** when momentum is *above zero and rising*.
- **Short** when momentum is *below zero and falling*.

A **trend EMA** (`TrendEmaPeriod`) adds a final confluence filter — longs are only allowed when price is above the EMA, shorts only when price is below it — cutting counter-trend false signals. A **max-spread guard** (`MaxSpreadPoints`) blocks entries when execution costs are abnormally wide.

Long entry example

Price has been compressed inside a squeeze for 9 bars (≥ `MinSqueezeBars` of 6). On the current completed bar the Bollinger Band pops back outside the Keltner Channel (release), momentum is positive and higher than the prior bar, and price is trading above the 50-period trend EMA. All conditions align → the EA opens a **BUY** at the next bar's open with an ATR-based stop and target.

4. Exits — stops, targets & trailing

All risk levels scale with ATR, so they adapt automatically to the instrument's current volatility:

- **Stop loss** = entry ± `SlAtrMult` × ATR.
- **Take profit** = entry ± `TpAtrMult` × ATR. The reward:risk ratio is therefore `TpAtrMult / SlAtrMult` (3.0 / 2.0 = **1.5:1** at defaults).
- **Trailing stop** = `TrailAtrMult` × ATR, applied continuously while the trade is open. It *only ever tightens* — it locks in open profit once a move runs and never loosens. Set `TrailAtrMult = 0` to disable trailing.

Only **one position per magic number** is held at a time; while a position is open the EA simply manages its trailing stop and takes no new entries.

5. Position sizing

Lots are sized by **fixed-fractional** risk: the stop distance is scaled so that a full stop-out loses `RiskPercent` of account balance.

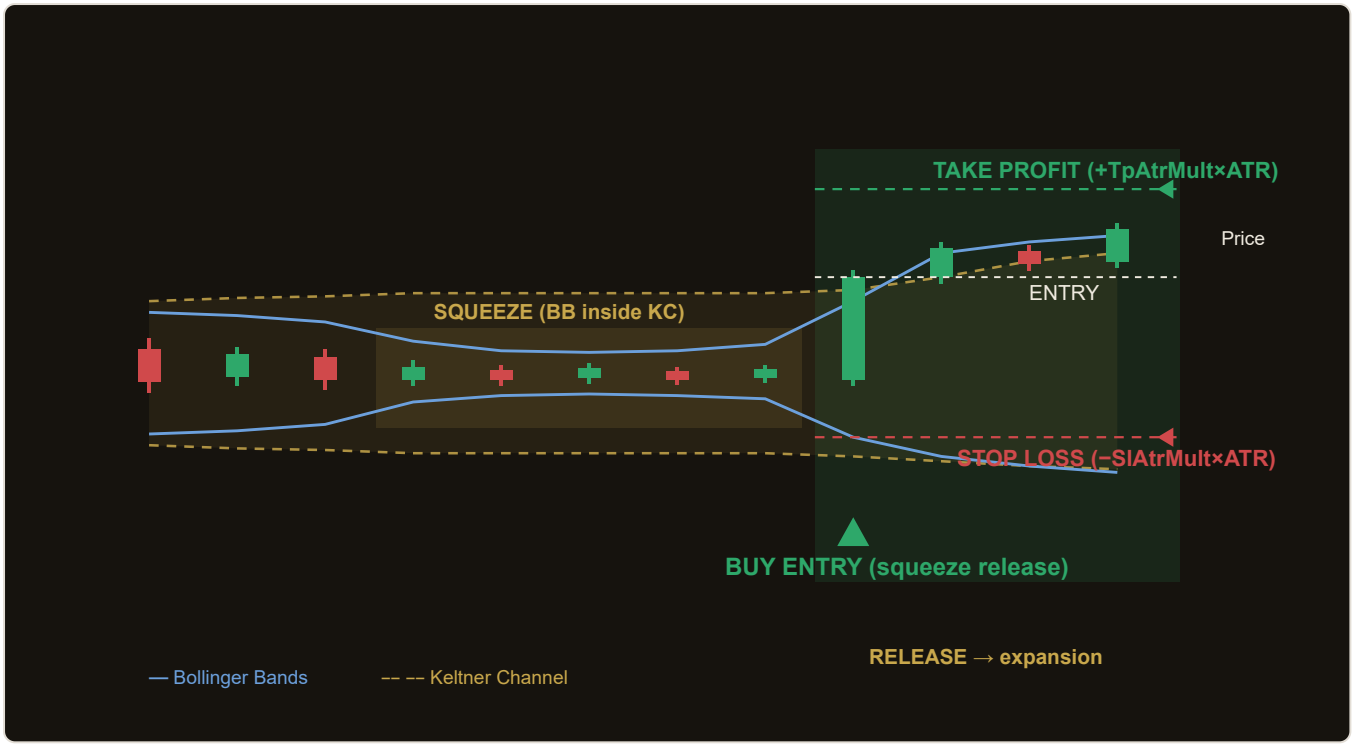
```
riskMoney = balance × RiskPercent / 100
lots      = riskMoney / (stopDistance × ContractSize)
```

The result is rounded *down* to 0.01 lots, clamped to a minimum of 0.01 and a maximum of `MaxLots`, and falls back to the fixed `Lots` value on any invalid input.

> **Non-repainting by design:** every calculation uses shift 1 (the last *closed* bar) and fires only once per bar, when a new bar opens. Signals never change after the fact, so live behaviour matches backtest behaviour.

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

The following inputs are exposed for optimisation (defaults, ranges and step sizes mirror the strategy's parameter definitions):

Parameter	Default	Description
BbPeriod	`20`	Shared SMA basis length for the Bollinger Band and Keltner Channel. Range 10–40, step 1.
BbMult	`2.0`	Bollinger standard-deviation multiplier (band width). Range 1.5–3.0, step 0.1.
KcMult	`1.5`	Keltner ATR multiplier (channel width). Squeeze = Bollinger inside Keltner. Range 1.0–2.5, step 0.1.
MomentumPeriod	`12`	Lookback for the TTM momentum oscillator that sets trade direction. Range 6–30, step 1.
AtrPeriod	`14`	ATR period used for Keltner width, stops, target and trailing. Range 7–30, step 1.
SlAtrMult	`2.0`	Stop-loss distance = this × ATR. Range 1.0–4.0, step 0.5.
TpAtrMult	`3.0`	Take-profit distance = this × ATR (R:R = TpAtrMult / SlAtrMult). Range 1.0–6.0, step 0.5.
TrailAtrMult	`2.0`	Trailing-stop distance = this × ATR; 0 disables trailing. Range 0.0–5.0, step 0.5.
TrendEmaPeriod	`50`	Trend-filter EMA length (long only above, short only below). Range 20–200, step 10.
MinSqueezeBars	`6`	Squeeze must last at least this many bars before a release is traded. Range 1–20, step 1.
RiskPercent	`1.0`	Fraction of balance risked per trade (fixed-fractional sizing). Range 0.1–3.0, step 0.1.

MONEY MANAGEMENT & EXECUTION INPUTS

These inputs configure sizing and execution. They are read at initialisation but are not part of the optimisable set.

Parameter	Default	Description
Lots	`0.10`	Fallback fixed lot size used when risk-based sizing cannot be computed.
MaxLots	`5.0`	Hard upper clamp on position size (lots).
ContractSize	`100000.0`	Contract size used in the fixed-fractional lot calculation.
MaxSpreadPoints	`100000`	Maximum allowed spread (in points) for a new entry; wider spreads block the trade.
Magic	`770019`	Magic number identifying this EA's positions (one position per magic at a time).

Recommended Settings

The default parameters are a balanced starting point. Adjust to the instrument's character and always validate on out-of-sample data before going live.

- **Timeframe:** H1 or H4 give the squeeze time to build; the strategy runs on whatever timeframe you attach it to.
- **Symbols:** instruments that alternate between quiet consolidation and strong trends — major FX pairs, index CFDs and metals — suit a squeeze-release approach.
- **Squeeze quality:** raise `MinSqueezeBars` for fewer but higher-energy releases; lower it for more frequent signals.
- **Risk:** keep `RiskPercent` at 0.5–1.0 while evaluating. The default 1.5:1 reward:risk (`TpAtrMult` 3.0 / `SlAtrMult` 2.0) can be widened via `TpAtrMult` for trend-following behaviour.
- **Trailing:** keep `TrailAtrMult` around 2.0 to ride extended expansions; set it to 0 to rely purely on the fixed ATR target.

> **Tip:** because every risk level is ATR-scaled, the EA adapts to each symbol's volatility automatically. When re-tuning, prefer changing the *multipliers* (`SlAtrMult` , `TpAtrMult` , `KcMult`) over the raw periods — the multipliers change behaviour without shifting the underlying lookbacks.

How to Install on MetaTrader 5

1. Copy `VolatilitySqueezeMomentumShift.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 on quality historical data, then forward-test on a demo account. Confirm that spread, commission and swap assumptions match your broker before committing real capital.

Risk Warning

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