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Head And Shoulders Pattern

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Chart Pattern Reversal (Price Structure)	H1 to H4 (runs on the chart timeframe it is attached to)	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

Head And Shoulders Pattern is an educational Expert Advisor that reads the classic head-and-shoulders reversal directly from price structure. It uses no indicators: there are no moving averages, oscillators, volatility measures or volume inputs. Instead, it confirms swing highs and swing lows using N-bar fractals, which are not redrawn after they are confirmed, and links them into an alternating high/low zig-zag.

When the last five swings form a bearish head-and-shoulders (left shoulder, trough, head, trough, right shoulder), the EA measures the pattern against a set of geometry rules: the head must be higher than both shoulders, the shoulders must be reasonably similar in height, the neckline through the two troughs must not be too steep, and the two sides of the pattern must be reasonably balanced in time. The inverse head-and-shoulders is handled as an exact mirror image, using the two peaks to define the neckline.

The approach is designed to study how a reversal pattern can be defined with explicit, measurable rules. It suits learners who want to see how a visual chart pattern is converted into code and how its settings change what the EA recognizes. Trading involves risk and losses occur; this material is educational information only and is not financial advice.

How It Works

Entry Logic

- The EA works once per bar, on the bar that has just closed, and uses only the chart timeframe it is attached to.
- A swing high or swing low is confirmed when a bar is more extreme than `SwingStrength` bars on each side. Consecutive swings of the same type are merged, keeping the more extreme one.
- **Bearish pattern (sell setup):** the last five swings must run left-shoulder high, trough T1, head high, trough T2, right-shoulder high. The neckline is the straight line through T1 and T2, extended forward.
- The head must be higher than both shoulders, and the right shoulder must be lower than the head. All three peaks must sit above the neckline.
- The head's height above the neckline must be at least `HeadToShoulderRatio` times the taller shoulder's height.
- The shorter shoulder divided by the taller shoulder must be at least `ShoulderSymmetry`.
- The difference between the two troughs must not exceed `MaxNecklineTilt` times the head height.
- The bar count from the left shoulder to the head, compared with the head to the right shoulder, must be balanced to at least `MinTimeSymmetry`.
- If all rules pass, the setup is armed. A sell is considered at the first bar that **closes below** the projected neckline, within `BreakExpiryBars` bars.
- **Inverse pattern (buy setup):** the exact mirror. It uses a low, a higher peak, a lower low (the head), a higher peak and a higher low, with the neckline through the two peaks. A buy is considered at the first bar that closes above the neckline.
- Only one position per Magic number is allowed at a time. If a position is already open when the neckline closes, the setup is used up and no new order is sent.

Exit Logic

- Positions are closed only by the stop-loss or take-profit attached to the order; the EA does not close trades manually.
- An armed setup is cancelled if any bar trades beyond the right shoulder (above it for a sell setup, below it for a buy setup).
- An armed setup is also cancelled once more than `BreakExpiryBars` bars pass without a neckline close.
- After a neckline close, that right shoulder is marked as used so the same pattern is not traded twice.

Stop-Loss and Take-Profit

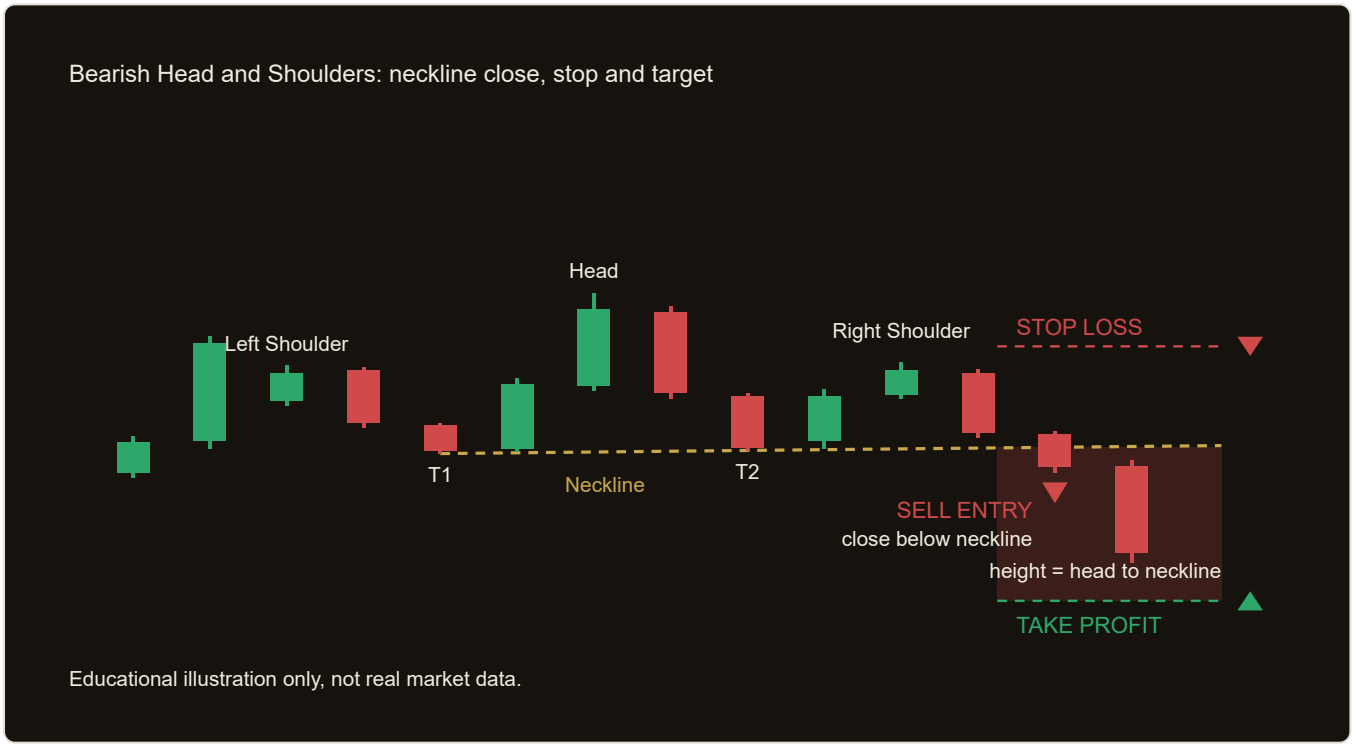
- **Stop-loss:** placed beyond the right shoulder (above it for sells, below it for buys), plus a buffer of `StopBufferPct` times the pattern height.

- **Take-profit:** the pattern height (head to neckline) multiplied by `TargetMultiple`, measured from the neckline level in the direction of the break.
- Before sending an order, the EA checks that the stop and target distances exceed the larger of the broker's minimum stop level and the current spread.
- The trade is also skipped if the reward-to-risk ratio is below `MinRewardRisk`. Skipped setups are recorded in the Experts log.
- Order volume is rounded down to the symbol's volume step and kept within the broker's minimum and maximum.

> **Tip:** Open the Experts log while the EA runs on a demo account. It prints a line each time a pattern is armed, with the shoulder, head and neckline values, and another line when a setup is skipped. Comparing these lines with the chart is a good way to learn how the geometry settings affect what is recognized.

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.

Example: Bearish Pattern

Suppose price forms a left-shoulder high, falls to a trough, rises to a higher head, falls to a second trough at a similar level, and then rises to a right-shoulder high that is lower than the head. The EA confirms the swings, checks the geometry rules and arms the setup. Later, a bar closes below the neckline drawn through the two troughs. The EA records a sell at the current price, places the stop-loss just above the right shoulder (plus the buffer) and places the take-profit below the neckline by the head-to-neckline height. If price instead trades above the right shoulder before the neckline close, the setup is cancelled and no order is sent. Either outcome is possible, and this example is purely illustrative.

Parameters

Parameter	Default	Description
SwingStrength	`3`	Number of bars required on each side of a bar for it to count as a confirmed swing high or low (range 2 to 8). Higher values find fewer, larger swings.
HeadToShoulderRatio	`1.20`	Minimum head height above the neckline, as a multiple of the taller shoulder's height (range 1.0 to 2.5).
ShoulderSymmetry	`0.50`	Minimum ratio of the shorter shoulder's height to the taller shoulder's height (range 0.2 to 0.9).
MaxNecklineTilt	`0.50`	Maximum difference between the two neckline troughs (or peaks), as a fraction of the head height (range 0.0 to 1.0). Lower values require a flatter neckline.
MinTimeSymmetry	`0.30`	Minimum ratio of the shorter side of the pattern to the longer side, measured in bars from left shoulder to head and from head to right shoulder (range 0.1 to 0.9).
StopBufferPct	`0.10`	Extra distance beyond the right shoulder for the stop-loss, as a fraction of the pattern height (range 0.0 to 0.5).
TargetMultiple	`1.00`	Multiplier applied to the pattern height when placing the take-profit from the neckline (range 0.5 to 2.0).
MinRewardRisk	`1.00`	Minimum reward-to-risk ratio required for an order to be sent (range 0.3 to 3.0).
BreakExpiryBars	`30`	Number of bars an armed pattern waits for a neckline close before it is cancelled (range 5 to 150).
Lots	`0.10`	Order volume in lots (range 0.01 to 1.0). Adjusted to the broker's volume step and limits.
Magic	`7311`	Magic number used to identify this EA's orders and to enforce one open position at a time.

Recommended Settings

- **Symbols:** the source notes EURUSD, GBPUSD and XAUUSD on H1 to H4, or US500 on H1, as example markets for study.

- **Timeframe:** the EA reads only the chart timeframe it is attached to, so test each timeframe separately.
- **Position size:** keep `Lots` small relative to the account, and consider how much a stop-loss hit would cost before testing.
- **Patterns are infrequent:** the geometry rules are strict, so there may be long periods with no setups. This is expected behaviour.
- **Testing:** run the EA in the Strategy Tester and then on a demo account first. Past results do not indicate future results, and losses occur.

How to Install on MetaTrader 5

1. Copy `HeadAndShouldersPattern.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.