

NC Renko Bars

User Manual · Version 1.1

Renko-style bricks with separate trend and reversal distances, built only from prices that actually traded.

Two settings

Step Size and Reverse Size, in ticks. Defaults 6 and 12.

Real wicks and volume

Each brick holds every trade from its opening trade to its closing trade.

Real prices only

Every open, high, low and close is a trade that happened. No grid prices, no empty filler bricks.

Break at EOD

Start fresh each session, or let bricks run across sessions.

CONTENTS

- | | |
|------------------------------------|-------------------------------|
| 1. Installing | 6. Break at EOD |
| 2. Adding the bars to a chart | 7. Choosing Step and Reverse |
| 3. How a brick is built | 8. Strategies and NinjaScript |
| 4. Worked example | 9. Good to know |
| 5. Compared with NinjaTrader Renko | |

01 Installing

- 1 If you have **NC Renko Bars 1.0** installed, remove it first. In the NinjaScript Editor, open the **BarTypes** folder, right-click **NCRenkoBars** and remove it. Version 1.1 is installed in a different folder, and if both are present two bars types claim the same id.
- 2 In the Control Center, choose **Tools** → **Import** → **NinjaScript Add-On...** and select the NC Renko Bars zip file.
- 3 NinjaTrader compiles the import. **NC Renko Bars V1.1** now appears in the **Type** list of every Data Series window.

02 Adding the bars to a chart

- 1 Open a new chart (**New** → **Chart**), or right-click an existing chart and choose **Data Series...** (Ctrl+F).
- 2 Select the instrument, then under **Type** choose **NC Renko Bars V1.1**.
- 3 Set **Step Size (ticks)** and **Reverse Size (ticks)**.
- 4 Set **Days to load** (default 5). The bricks are built from tick data, so more days take longer to load.
- 5 Optionally tick **Break at EOD** (section 6).
- 6 Click **OK**. The chart label shows the settings, for example **NC Renko 6/12**.

Setting	Default	What it does
Step Size (ticks)	6	Distance in the direction of the last brick that closes the next brick in the same direction. The first brick uses it both ways.
Reverse Size (ticks)	12	Distance against the last brick that closes the next brick in the opposite direction.
Break at EOD	Your NinjaTrader setting	Starts a fresh brick at each new session (section 6).
Chart style	Open/Close	Shows brick bodies only. Choose Candlestick to also see each brick's real high and low.

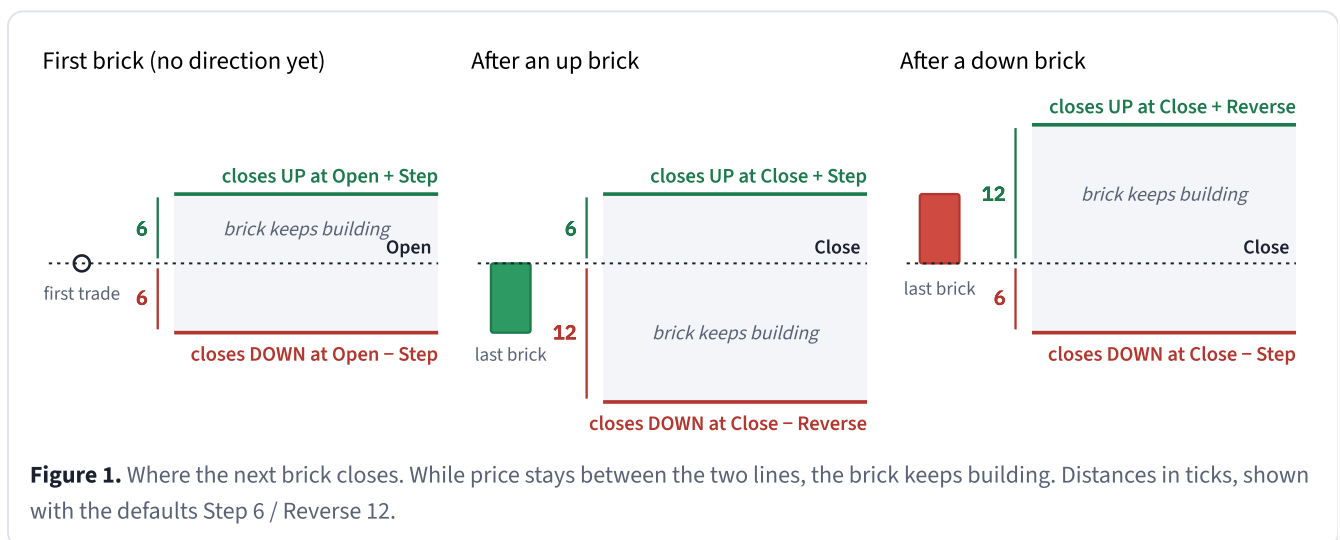
Both sizes are at least 1 tick. A value of 0 is treated as 1.

03 How a brick is built

A brick doesn't close at a set time. It closes as soon as price has moved far enough from the previous brick's close. NC Renko Bars use two distances:

- **Step** is how far price must move in the direction of the last brick to add another brick in that direction.
- **Reverse** is how far price must move against the last brick to close a brick the other way.

Distances are counted in whole ticks from the previous brick's close. The very first brick has no previous brick, so it is measured from its own open, with Step in both directions.



Situation	Brick closes up at	Brick closes down at
First brick: start of the chart, or a new session with Break at EOD on	its open + Step	its open - Step
Last brick closed up	last close + Step	last close - Reverse
Last brick closed down	last close + Reverse	last close - Step

What each value of a brick is

Open	The first trade after the previous brick closed.
High / Low	The highest and lowest trades inside the brick.
Close	The trade that reached the distance. If price jumped past the target, the brick closes at that real price, not at the target.
Volume	All trades from the opening trade to the closing trade.
Time	The time of the closing trade. For the brick still building, the time of its latest trade.

Three things follow from this:

- **Bricks aren't all the same height.** A brick's body runs from its own opening trade to its own closing trade.
- **There is usually a small gap between bricks.** It is the price move between the closing trade and the next trade.
- **A finished brick never changes.** Only the brick still building updates with each new trade.

04 Worked example

An ES-type instrument with a tick size of 0.25, and Step 4 / Reverse 8 ticks (1.00 and 2.00 points). These are small values so that every one of the 30 trades fits in the picture. Each trade is 1 contract.

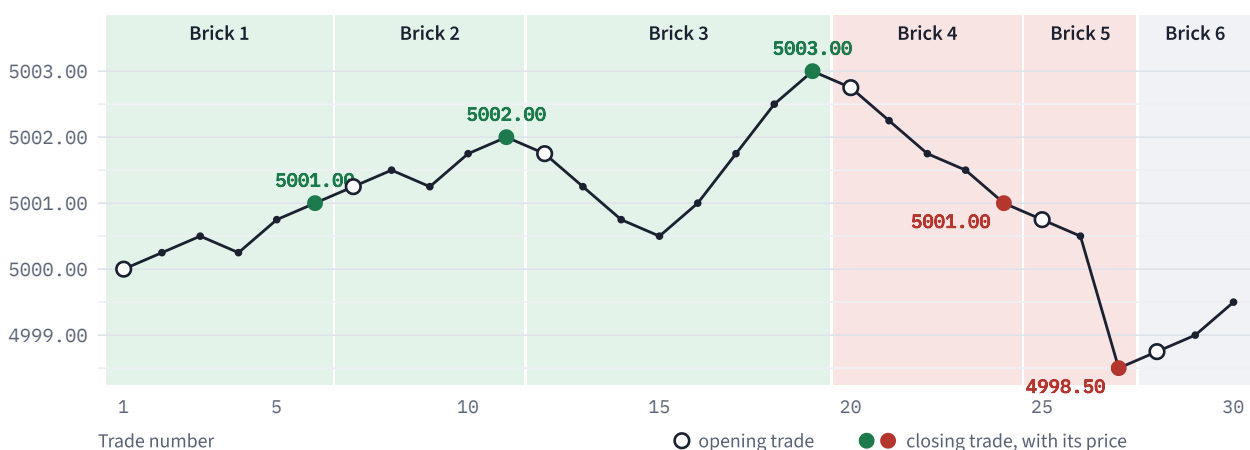


Figure 2. The 30 trades. Each shaded band is one brick: green closed up, red closed down, grey is still building.

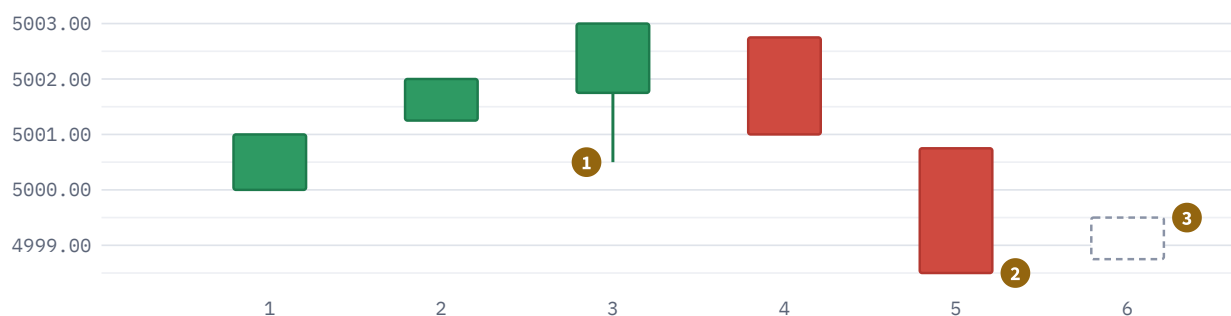
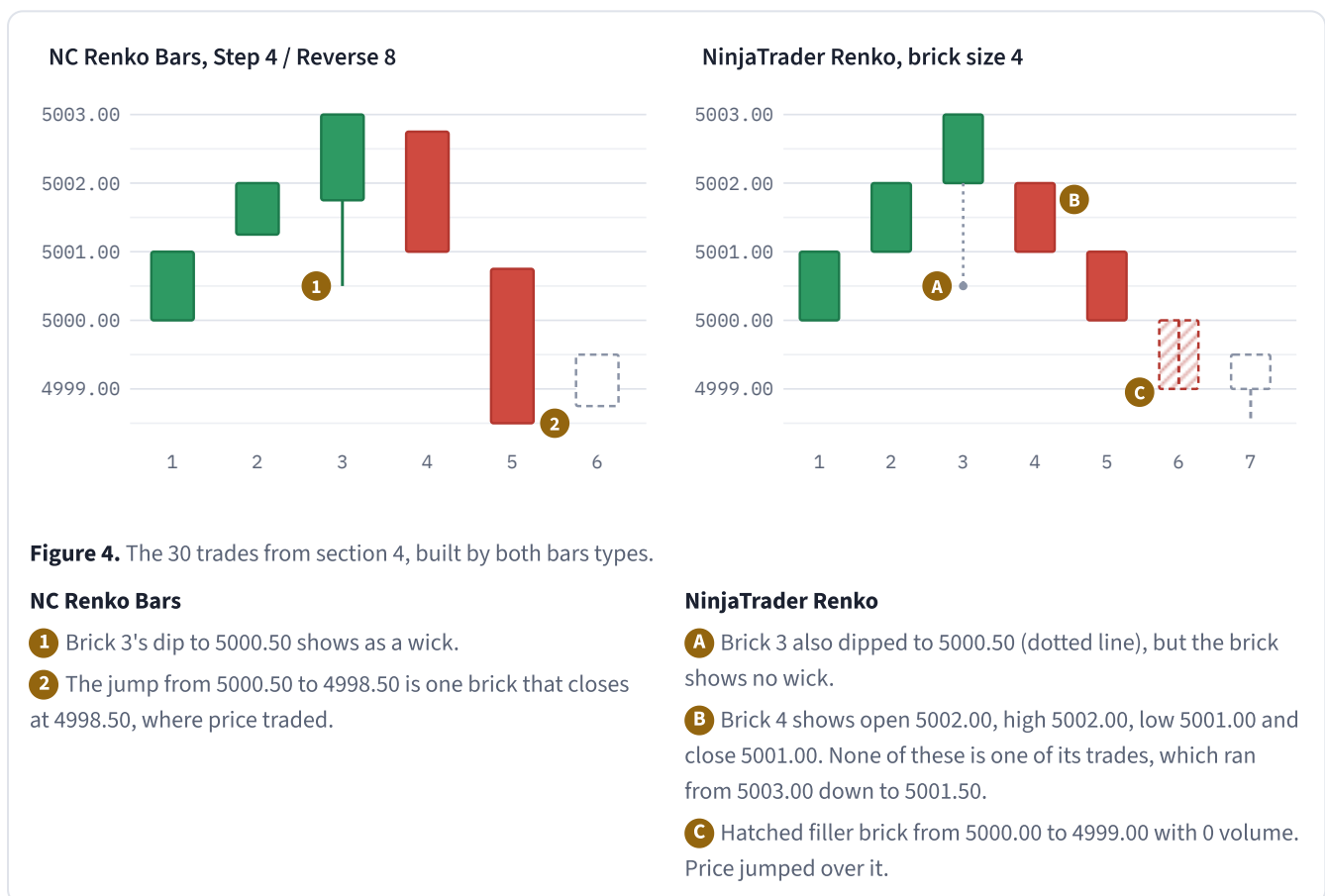


Figure 3. The bricks those trades produce. Body: open to close. Thin line: the real high and low inside the brick. ① Brick 3's wick shows the real dip to 5000.50. ② Brick 5 closes at 4998.50, where price actually traded, not at its 5000.00 target. ③ Brick 6 is still building.

#	Trades	Open	High	Low	Close	Closed	Vol	Why it closed
1	1–6	5000.00	5001.00	5000.00	5001.00	Up	6	First brick: up 4 ticks from its open
2	7–11	5001.25	5002.00	5001.25	5002.00	Up	5	Up 4 ticks from the last close (Step 4)
3	12–19	5001.75	5003.00	5000.50	5003.00	Up	8	Dipped 6 ticks (less than Reverse 8), then up 4 ticks from the last close
4	20–24	5002.75	5002.75	5001.00	5001.00	Down	5	Down 8 ticks from the last close (Reverse 8)
5	25–27	5000.75	5000.75	4998.50	4998.50	Down	3	Down 10 ticks in one jump; Step 4 was enough, closes at the real price
6	28–30	4998.75	4999.50	4998.75	4999.50	—	3	Still building

05 Compared with NinjaTrader Renko

NinjaTrader's built-in Renko has one brick size, turns after two bricks, and draws every brick on a fixed price grid. To keep that grid, it sets opens and closes to grid prices and drops a brick's real high and low. When price jumps, it adds bricks that contain no trades.



	NC Renko Bars	NinjaTrader Renko
Settings	Step and Reverse set separately	One brick size, reversal fixed at 2 bricks
Open	The brick's first real trade	A grid price
Close	The real trade that reached the distance	A grid price
High / Low	The real extremes of the brick	Replaced by the open and close once the brick finishes
Price jumps	One brick that closes at the real price	Extra filler bricks with 0 volume

Why it matters

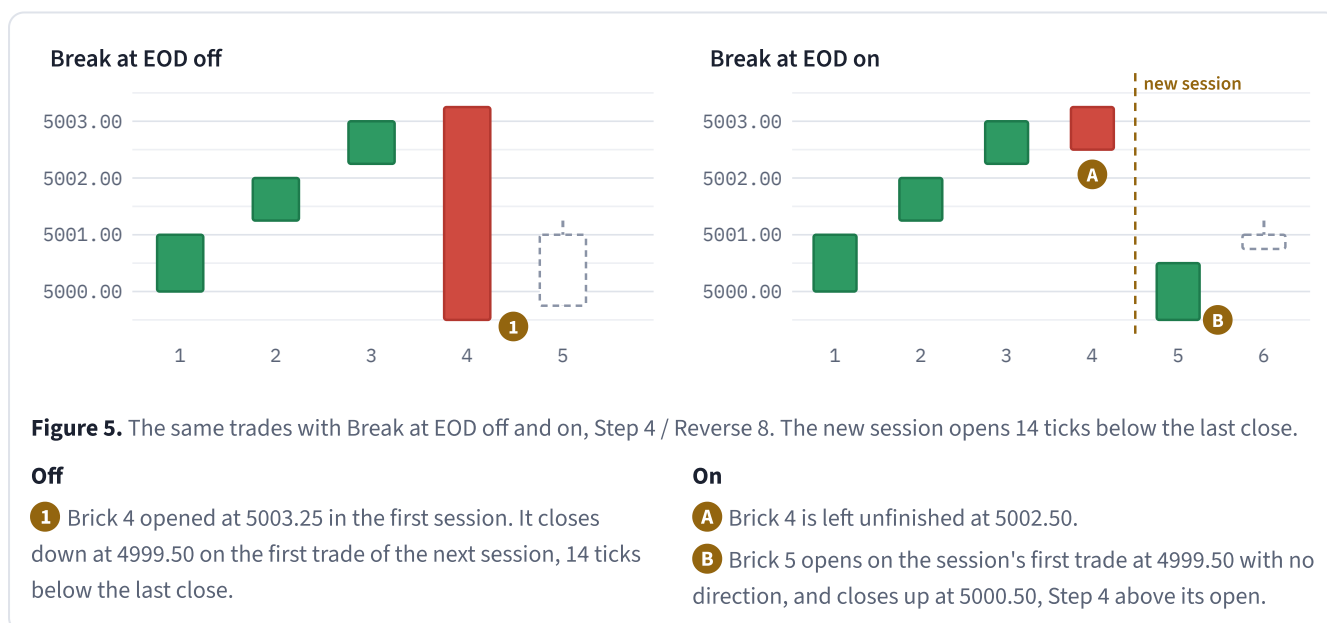
Indicators and strategies read the open, high, low and close of each brick. On NC Renko Bars these are always prices that traded:

- In a backtest, an order filled at a brick's open gets the price of a real trade, not a grid price that may never have traded at that moment.
- Stops and targets placed from brick highs and lows use real extremes.
- Volume-based indicators never see empty filler bricks.

Matching settings. NinjaTrader Renko with brick size N uses the same distances as NC Renko Bars with Step N and Reverse 2N. The bricks will still differ slightly, because NC Renko Bars measure from real closes instead of the grid.

06 Break at EOD

Break at EOD is NinjaTrader's own checkbox in the Data Series window. NC Renko Bars follow it the same way NinjaTrader's built-in bars types do.



On: at the first trade of a new session, the brick in progress is left unfinished and a new brick starts with no direction. Like the first brick on the chart, it needs Step ticks either way. Gaps between sessions never close a brick.

Off: bricks run across sessions. The first trade of a new session is measured against the last close like any other trade, so a gap at the open can close the brick in progress.

Sessions come from the **Trading hours** template of the data series. Most templates have one session per day. A template with several sessions per day starts a fresh brick at each one.

- **Turn it on** to look at each session on its own, for example when you day trade futures and don't want overnight gaps in your bricks.
- **Leave it off** for one continuous chart across days with no unfinished bricks at session ends.

07 Choosing Step and Reverse

- **Step** sets the level of detail. A smaller Step gives more bricks.
- **Reverse** sets how easily the bricks turn. A larger Reverse gives fewer turns: bricks stay with the trend longer and turn later.
- **Reverse = 2 × Step** gives classic Renko distances. The default 6 / 12 is set up this way.
- **Reverse = Step** is symmetric: a move of Step either way closes a brick.
- **Reverse smaller than Step** is allowed. Bricks then turn sooner than they continue.

Sizes are in ticks of the instrument, so the same settings cover different price distances on different markets:

Instrument	Tick size	Step 6 ticks	Reverse 12 ticks
ES, MES	0.25	1.50 points	3.00 points
NQ, MNQ	0.25	1.50 points	3.00 points
YM, MYM	1	6 points	12 points
CL, MCL	0.01	0.06	0.12
GC, MGC	0.10	0.60	1.20

08 Strategies and NinjaScript

Strategy Analyzer and Market Replay

In the Data Series section, choose **NC Renko Bars V1.1** as the Type and enter Step Size and Reverse Size as on a chart. Historical tick data must be available for the whole test period.

Calculate setting

With **On bar close**, a strategy sees each brick once it has finished, and finished bricks never change. With **On each tick** or **On price change**, the brick still building keeps changing until it closes.

Using the bars in your own code

NC Renko Bars register bars type id `55`. `Value` is the Step Size and `Value2` the Reverse Size, both in ticks. To add them as an extra series in a strategy or indicator, call this in `State.Configure`:

```
AddDataSeries(new BarsPeriod
{
    BarsPeriodType = (BarsPeriodType)55,
    Value = 6,
    Value2 = 12
});
```

To check that the primary series uses NC Renko Bars:

```
var isNCRenko = Bars.BarsPeriod.BarsPeriodType == (BarsPeriodType)55;
```

NC Smart Scalper uses this check: it needs NC Renko Bars on its chart and logs an error otherwise.

09 Good to know

The chart is empty, or only fills in with live data

NC Renko Bars are built from tick data. Your data connection must provide historical tick data for the days you load. Otherwise only live trades build bricks.

The bricks are not all the same size

This is by design. Each brick runs from its first trade to the trade that closed it, and price can jump past a target (section 3).

A brick can't close on its first trade

The earliest a brick can close is its second trade. After a sudden jump right after a brick closes, the new brick can open beyond its own target and close on its next trade. In that rare case, the brick's colour (close compared with open) can be the opposite of the direction it closed in, which is the direction the next brick's rules use.

Historical futures prices look shifted

With the merge policy **Merge back adjusted**, NinjaTrader shifts the prices of older contracts by the rollover difference, so past bricks show prices that never traded. To see prices as they traded, choose **Merge non back adjusted** or **Do not merge** under **Tools → Options → Market data**.

Changing a setting reloads the chart

Changing Step Size, Reverse Size or Break at EOD rebuilds all bricks from tick data.

NC Renko Bars appear twice, or the import shows errors

Version 1.0 is probably still installed. Remove it as described in section 1, then import again.

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