Production Tracker

Power BI custom visual — user guide

Per-machine production overview with OEE, daily-target fulfilment and planned / unplanned downtime analysis.

Version 5.3 · Power BI Visuals API 5.3 · Query Craft Academy

1. What this visual does

Production Tracker turns one production fact table into a shop-floor dashboard. For every machine it shows how much was produced, whether the daily target was met, the OEE (Availability × Performance × Quality), and a planned vs. unplanned downtime breakdown. It is built for production managers and shift supervisors who need a clear, at-a-glance view of machine performance — not for forward planning.

Key capabilities:

- Four ways to look at the data — a Production Overview bar chart, a Table, a Tiles (card) view and an OEE gauge view.
- OEE calculated from your data and a configurable shift schedule (no DAX measures required).
- Planned vs. unplanned downtime split automatically from a downtime code.
- Interactive filtering by shift, line, location, product, category and date range.
- A printable daily report, light / dark themes and English / Hungarian language.

2. Quick start

1. In Power BI Desktop open the Visualizations pane, click … (Get more visuals) or Import a visual from a file, and add Production Tracker.
2. Click the Production Tracker icon to drop the visual on the report page and resize it to fill the canvas.
3. Drag Machine into the Machine field and Produced Qty into the Produced Qty field. You now have a working table.
4. Add the remaining fields (see section 4) to unlock the chart, OEE and downtime views.
5. Open the Shift settings panel (gear button) and pick the shift schedule that matches your plant (section 5).

Tip. Machine is the only field the visual strictly needs to draw, but a production tracker is only meaningful once you also bind Produced Qty, Cycle Time, Date and the loss / downtime measures — these drive the targets, OEE and the planned / unplanned split. Section 4 lists exactly what each field affects.

3. Recommended data model

The visual works best on a simple star schema with one production fact table. You do not need to write any DAX measures — bind the raw columns and the visual aggregates them.

Table	Type	Key columns
Dim_Machine	Dimension	MachineID, MachineName, (AreaName, AreaSequence)
Dim_Product	Dimension	ProductID, ProductName, ProductCategory
Dim_Date	Dimension	Date (day grain), WeekNumber
Dim_Shift	Dimension	ShiftID, ShiftName (Morning / Afternoon / Night)
Dim_DowntimeCode	Dimension	DowntimeCode (ST-01, UT-03 …), Description
Dim_Area	Dimension	AreaName, Sequence (sort key) — optional
Fact_Production	Fact	MachineID, ProductID, Date, ShiftID, DowntimeCode, ProducedQty, FTTLossQty, ScrapQty, DowntimeMin, CycleTime_min

Relationships: Fact_Production links to Dim_Machine, Dim_Product, Dim_Date, Dim_Shift and Dim_DowntimeCode. Dim_Machine optionally links to Dim_Area. A single fact table keeps everything in one filter context — no cross-joins are needed.

Important. Turn OFF Power BI “Auto date/time” for this model, and bind the Date field to a real day-grain date column — the visual counts distinct production days to work out the shift count.

4. Field bindings

Drag these columns onto the visual's field wells. The Bind? column tells you how important each one is — note that almost every field feeds a metric, so most should be bound:

- Required — without it the visual shows nothing useful.
- Recommended — drives a core result (OEE, target, downtime, quality). Bind it unless you have a reason not to.
- Optional — adds a filter or chart grouping only.

Field	Bind to	Bind?	What it affects
Machine	Dim_Machine[MachineName]	Required	One bar / row per machine.
Produced Qty	Fact_Production[ProducedQty]	Required	The produced quantity, fill % and targets.
Cycle Time (min)	Fact_Production[CycleTime_min]	Recommended	Daily Target, Performance and Fill %. 0 without it.
Date	Dim_Date[Date]	Recommended	Shift count (days × shifts/day) → open time, target, OEE; date filter.
Product	Dim_Product[ProductName]	Recommended	Shown in the table, tiles and popup.
FTT Loss Qty	Fact_Production[FTTLossQty]	Recommended	Lowers the Quality factor of OEE.
Scrap Qty	Fact_Production[ScrapQty]	Recommended	Lowers the Quality factor of OEE.
Downtime (min)	Fact_Production[DowntimeMin]	Recommended	Unplanned part lowers Availability; shown in the breakdown.
Downtime Code	Dim_DowntimeCode[DowntimeCode]	Recommended	Splits downtime into planned / unplanned (see §7).
Downtime Reason	Dim_DowntimeCode[Description]	Recommended	Readable downtime label in the popup.
Shift	Dim_Shift[ShiftName]	Optional	Adds the Shift filter.
Production Line	your line column	Optional	Adds the Line filter.
Product Category	Dim_Product[ProductCategory]	Optional	Adds the Category filter.
Area Name	Dim_Area[AreaName]	Optional	Groups the bars by area in the chart.
Area Sort Key	Dim_Area[Sequence]	Optional	Orders the area groups (A01, A02 …).

Tip. Bind both Downtime Reason and Downtime Code. The code (ST-01, UT-03) decides planned vs. unplanned; the reason is the friendly text shown to users.

5. Shift schedule & open time

Click Shift settings (the gear button) in the top bar to open the configuration panel. It has three groups:

Shift Schedule

Pick one of 12 templates, or Custom to type the shift length yourself. Each template sets the shift length, shifts per day and the working-day pattern:

Template	Shift length	Shifts / day	Working days
5/2 eight hours (8h)	480 min	2	Mon–Fri
5/3 eight hours (8h)	480 min	3	Mon–Fri
5/3 twelve hours (12h)	720 min	2	5 days
4/2 / 6/2 (8h or 12h)	480 / 720 min	2	4 or 6 days
2/2 (8h or 12h)	480 / 720 min	2	rotating
Continuous eight hours (8h)	480 min	3	every day
Continuous twelve hours (12h)	720 min	2	every day
Custom	you enter	from template	–

Planned Stops

Six named categories are deducted from each shift: Lunch break (30), Morning break (10), Afternoon break (10), Shift change (15), Planned maintenance (0) and Other planned stop (0). Their sum is the planned-stop total per shift.

Summary

The panel shows how the open time is built:

- Shift count = distinct production days in the data × shifts per day (the working-day pattern is respected; weekend days outside the pattern are added as extra shifts).
- Base open time / shift = shift length − total planned stops.
- Open time = shift count × base open time — the productive time the whole calculation uses.

> Important. Because the shift count is driven by the template, switching e.g. from Continuous 12h (2 shifts/day) to 5/3 8h (3 shifts/day) changes the shift count and therefore the open time, the daily target and OEE. Choose the template that matches your real plant calendar.

The same four values (shift length, shifts per day, planned stop, working days) are also available in the Power BI Format pane → Shift schedule card as a simple fallback. Settings made in the panel are saved with the report.

6. How OEE is calculated

OEE is derived per machine from the bound measures and the open time:

Metric	Formula
Run time	Open time − unplanned downtime
Availability	Run time / Open time
Performance	Produced / (Run time / Cycle time)
Quality	(Produced − FTT Loss − Scrap) / Produced
OEE	Availability × Performance × Quality
Daily Target	Open time / Cycle time
Fill %	Produced / Daily Target × 100

Gauge colours: ≥ 85% green, 60–84% yellow, < 60% red. Only unplanned downtime reduces availability — planned stops are already removed from the open time.

7. Planned vs. unplanned downtime

The split is decided by the first character of the Downtime Code:

- Planned — the code starts with the capital letter “S” (e.g. ST-01, S-LUNCH).
- Unplanned — the code starts with anything else (e.g. UT-03, BD-1, M01).

Only the first letter matters — the codes do not have to be exactly “ST” / “UT”. If the Downtime Code field is left unbound, the visual falls back to the Downtime Reason text for the split, so binding the code field is recommended for an accurate result.

8. The views

Production Overview chart

A bar per machine, grouped by area. The bar height is the produced quantity; a dashed line and ghost box mark the daily target; the percentage and target are printed below. Bars are coloured by fill %: ≥ 90% green, ~85% yellow, ≤ 70% red with a smooth blend in between. Click the expand button (top-right of the chart) to open it full-screen, or a bar to open the machine detail.

Table

One row per machine with Product, Cycle, Produced, FTT Loss, Scrap, Downtime codes, Downtime min, Open Time, Target and Fill %, plus a totals row. Click a row for the detail popup.

Tiles

A responsive grid of cards. The left border is green when the machine met its target and red when it did not; each card shows the key KPIs and downtime badges.

OEE

Machine “pills” let you pick All machines or a single machine. Four circular gauges show OEE, Availability, Quality and Performance; below them a per-machine OEE breakdown lists each machine's OEE with its A / Q / P components.

Detail popup

Clicking a machine (bar, row or tile) opens a popup with the produced-vs-target KPIs, the OEE cards and the planned / unplanned downtime broken out into two columns.

Daily report

The Report button opens a full-screen, scrollable report: a header with the date and machine count, an overall-status bar, four KPI cards (Total Produced, Plan Fulfilment, Scrap, Downtime) and a line-performance table for every machine. To save it, use the report popup and your operating system's screenshot (Win+Shift+S) or print (Ctrl+P) — there is no built-in file export.

9. Top bar, filters and personalisation

- Filters — All shifts, All lines, All locations, All products, All categories, plus From / To date pickers. Each filters the whole visual instantly.
- View tabs — Table, Tiles, OEE.
- Report — opens the daily report.
- Shift settings (gear button) — opens / closes the shift panel.
- ▲ Collapse / ▼ Expand — hides or shows the Production Overview chart.
- Light / Dark — theme toggle.
- EN / HU — switches the interface language (English / Hungarian).

10. Troubleshooting

Symptom	Cause & fix
“Add data fields…” message	The Machine field is empty — bind a machine column.
No bars in the chart	Bind a measure to Produced Qty.
All downtime shows as unplanned	Bind Downtime Code with codes that start with “S” for planned stops.
OEE gauges empty / 0%	Bind Cycle Time (min); without it the target and OEE cannot be computed.
Shift count looks wrong	Pick the shift template that matches your plant; check the bound Date column has the right days.
Areas not grouped in the chart	Bind Area Name (and optionally Area Sort Key).
Fill % seems too high / low	Verify the shift settings — open time = shift count × (shift length − planned stops).