Core volume and quality

Total Events

- Formula:

$$TotalEvents = COUNTROWS(Fact_MachineEvents)$$

- Meaning: Total number of machine event records (all monitored cycles) in the selected filters.

Total Failures

- Formula:

$$TotalFailures = SUM(Fact_MachineEvents[MachineFailure])$$

- Meaning: Number of events where at least one failure occurred (MachineFailure = 1).

Failure Rate %

- Formula:

$$FailureRate$$

- Meaning: Percentage of machine events that ended in failure, used to assess reliability.

Averages (operating conditions)

Avg Tool Wear

- Formula:

$$AvgToolWear = AVERAGE(Fact_MachineEvents[ToolWear])$$

- Meaning: Average cumulative tool usage (in minutes) across the selected events.

Avg Air Temp

- Formula:

$$AvgAirTemp = AVERAGE(Fact_MachineEvents[AirTempC])$$

- Meaning: Average air temperature around machines during events in the filter context.

Avg Process Temp

- Formula:

$$`AvgProcessTemp = AVERAGE(Fact_MachineEvents[ProcessTempC])`$$

- Meaning: Average process temperature during machine operation in the selected events.

Failure-type counts

TWF Count

- Formula:

$$`TWFCount = SUM(Fact_MachineEvents[TWF])`$$

- Meaning: Number of events with Tool Wear Failures (TWF = 1).

HDF Count

- Formula:

$$`HDFCount = SUM(Fact_MachineEvents[HDF])`$$

- Meaning: Number of events with Heat Dissipation Failures (HDF = 1).

PWF Count

- Formula:

$$`PWFCount = SUM(Fact_MachineEvents[PWF])`$$

- Meaning: Number of events with Power Failures (PWF = 1).

OSF Count

- Formula:

$$`OSFCount = SUM(Fact_MachineEvents[OSF])`$$

- Meaning: Number of events with Overstrain Failures (OSF = 1).

RNF Count

- Formula:

$$`RNFCount = SUM(Fact_MachineEvents[RNF])`$$

- Meaning: Number of events with Random Failures (RNF = 1).

Time-based measures

Failures YTD

- Formula:

$$`FailuresYTD = TOTALYTD([TotalFailures],'Dim_Date'[Date])`$$

- Meaning: Cumulative number of failures from the start of the year up to the selected date (for your data this covers January 2025 only).

Failures YOY

- Formula:
$$\text{'FailuresYOY} = CALCULATE([TotalFailures], SAMEPERIODLASTYEAR('Dim_Date'[Date]))\text{'}$$

- Meaning: Number of failures in the same period of the previous year; limited here because the dataset only has January 2025.

Failures MOM

- Formula:
$$\text{'FailuresMOM}$$
$$= [TotalFailures]$$
$$- CALCULATE([TotalFailures], DATEADD('Dim_Date'[Date], -1, MONTH))\text{'}$$

Meaning: Month-over-month change in total failures versus the previous month; also constrained by having only one month in the data.