

Downtime reason-code taxonomy

Give operators a short, stable list. Record what the system detected and the best current reason. Add a confirmed cause only after investigation, and never ask anyone to diagnose the root cause while the line is still down.

Rules of use

1. Level 1 is a short list of loss families. Operators choose from it.
2. Level 2 names the mechanism inside the family. Operators choose from it too.
3. Level 3, the confirmed cause, is added after investigation and only where the loss justifies it.
4. Record the origin asset and the impacted asset separately so one event is not counted several times.
5. Keep detected state, reason and confirmed cause in different fields.

Taxonomy

FAMILY	MECHANISM	DEFINITION	EXAMPLE
Equipment	Electrical	Stop caused by an electrical component or supply	Motor trip; contactor failure
Equipment	Mechanical	Stop caused by a worn or broken mechanical part	Bearing seizure; belt break
Equipment	Controls	Stop caused by PLC logic or drive faults	Interlock fault; drive alarm
Equipment	Tooling	Stop caused by tooling or format parts	Worn die; damaged guide
Equipment	Sensor	Stop caused by a sensor or its alignment	Photo-eye misalignment; dirty lens
Material	Shortage	Required material is not at the point of use	Empty hopper; missing components
Material	Quality	Material is present but unusable	Out-of-spec input; damaged packaging
Quality	Inspection hold	Line held for a quality check or decision	Vision reject investigation; first-piece approval
Quality	Reject handling	Stop to clear or rework rejects	Reject bin full; rework loop
Changeover	Method	Changeover exceeded standard because of method	Missing step; unclear sequence
Changeover	Tools and parts	Changeover delayed by tools or parts	Tool not staged; wrong format part
Changeover	Startup	Time to reach first good product after changeover	Adjustments after restart
Labor	Staffing	Required person not available	Absent operator; break not covered
Labor	Skill	Person present but not qualified for the task	Untrained on new format
Planning	Schedule	No work scheduled or wrong work released	No order; wrong sequence
Planning	Information	Missing instructions or documents	Missing recipe; wrong work order
Upstream starvation	Upstream stop	Waiting for output from an upstream resource	Filler starved by mixer stop
Downstream blocking	Downstream stop	Unable to discharge because of a downstream resource	Packer full; conveyor blocked

FAMILY	MECHANISM	DEFINITION	EXAMPLE
Utilities	Supply	Loss of power air water or steam	Compressed air pressure drop
Planned	Maintenance	Scheduled maintenance inside planned time	Lubrication round; calibration
Planned	Cleaning	Scheduled cleaning or sanitation	End-of-shift clean