Single Sampling Plans

Acceptance Quality Limit (AQL) Table for Normal Inspection

Department: Quality Assurance

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Product / Item Name: CS Seamless Tubes

Lot / Batch No.: CS/114

Lot Size: 125 Kgs. / 3 Bundle

Inspection Date: 18/10/2013

Inspector: A. Subham

Sample Size Code Letter	Sample Size	AQL (%)	Acceptance Number (Ac)	Rejection Number (Re)
J	80	1.00%	2	3
K	125	2.50%	5	6
L	200	0.65%	1	2
M	315	4.00%	10	11
N	500	6.50%	14	15

|| Key Observations

Sample Size vs AQL

Larger sample sizes (200, 315, 500) are paired with higher AQLs (0.65% – 6.5%).
This shows that as sample size increases, manufacturers are allowed slightly higher acceptance thresholds before rejection.

Acceptance & Rejection Numbers (Ac & Re)

The difference between Ac and Re is always 1, which is standard:
If defects ≤ Ac → Accept the lot.
If defects ≥ Re → Reject the lot.
Example: For sample size 200 at AQL 0.65, 1 defect is acceptable, but 2 defects will reject the lot.

Risk Balance

At lower AQL (0.65%) → The tolerance is stricter (only 1 defect allowed in 200 samples).
At higher AQL (6.5%) → The tolerance is relaxed (up to 14 defects allowed in 500 samples).

Efficiency vs Stringency

Small samples with low AQL (J: 80, 1.0%) → Good for detecting problems early but increases inspection frequency.
Large samples with higher AQL (N: 500, 6.5%) → Efficient for bulk lots but more defects pass before rejection.

|| Insights for Quality Control

Stricter Control (L: 200, AQL 0.65%): Suitable for critical products (medical, aerospace, safety parts).
Moderate Control (J & K: 80–125, AQL 1.0–2.5%): Balances quality and inspection cost, good for general production.
Relaxed Control (M & N: 315–500, AQL 4.0–6.5%): Used when minor defects don't impact usability or safety.

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