

GUIDE

How to prepare samples for a machine vision feasibility test

What to send, how to label it, and what the feasibility conclusion will tell you. Free to read and print; no sign-up.

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// SHORT ANSWER

A useful sample set shows the station what it will meet on your line: good products across their normal variation, and defective products for every fault you need caught, including borderline cases, each clearly labelled. Add photos or video of the line, product drawings and line data. There is no fixed sample quantity; the set must be representative, and quantities are agreed per project. The test ends in a written feasibility conclusion.

Key points

- ✓ Send good samples that cover the normal variation on your line, not only perfect ones.
- ✓ Send defective samples for every fault you need caught, including borderline cases, each labelled with its defect type and whether it should pass or fail.
- ✓ There is no fixed sample quantity. The set must be representative, and quantities are agreed per project.
- ✓ The result is a written feasibility conclusion: what was visible, under which conditions, and what still has to be verified on the line.

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Why the test starts with your samples

A vision station can only judge what the image shows. Whether a scratch, a crooked label or a missing cap stands out from the good product depends on lighting, lens, angle and material, and cannot be settled from a specification sheet. So before we propose a station, we image your own products under candidate lighting and optics and check whether each fault is clearly visible.

A set of perfect products and one obvious defect proves very little. A set that shows how your product really varies, and how each fault really looks, gives a conclusion you can plan with.

Good samples: the normal variation

Good samples show what "acceptable" looks like. Do not send only the best products: if the test never sees normal variation, the station may later reject good products that simply look a little different.

- Take samples from different batches, shifts and production days.
- Include every SKU, size and label variant that passes the inspection point.

- Include normal differences: print shade, gloss and matte finishes, moulding cavities, material or packaging from different suppliers.
- Mark each sample as good somewhere the camera will not see, or on a tag or bag.

Defective samples and how to label them

Send at least one example of every defect type on your list, and several where the defect varies in size, position or appearance.

Borderline cases matter most. A product that is just acceptable and one that should just be rejected show where the limit sits. Agree these with your quality team before sending, because the station will be tuned to the line you draw.

Label every sample:

- Give each sample an ID and record, in a simple sample list, the defect type, where the defect is, and whether it should pass, fail or is unsure.
- Do not write on or tape over the area to be inspected; use the underside, a tag or a numbered bag.
- If a defect was made on purpose, mark it as simulated. Simulated faults show whether a defect is visible, but they often look cleaner than real ones.

If real defects are rare, collect them over time from quality holds, rework or customer returns.

How many samples? What makes a set representative

There is no fixed number that suits every project, and we do not publish one. A sample set is representative when it covers:

- every product variant the station will inspect;
- the sources of normal variation on your line, such as batches, suppliers, moulds, print runs and shifts;
- every defect type, in the range of sizes and positions it occurs;
- the borderline cases on both sides of the limit.

How many samples that takes depends on how much your product varies, how many defect types there are, how serious a missed defect is, and what the test must prove. A feasibility test asks "can this be seen and separated?" Acceptance testing at FAT and SAT asks "does the station perform on the line?" and needs a larger, agreed set. Deep-learning inspection usually needs more labelled images than rule-based tools. The [rule-based or deep learning guide](#) explains why. We agree quantities with you per project, before anything is shipped.

Photos and video that help

Photos and video do not replace physical samples, but they show us the line in a way samples cannot:

- the product at the inspection point, in its real orientation;
- a short video of the line at normal speed, showing spacing and handling;
- the space around the proposed camera position;
- close-ups of each defect, with a ruler or scale in the frame;
- daylight from roof sheets or doors near the station, which affects the enclosure design.

Product and line information

This information tells us how the station must fit your line. The [PLC and reject integration guide](#) lists what we ask about your controls.

INFORMATION	WHAT TO SEND	WHY IT MATTERS
Product description	Drawings or photos, dimensions, materials, colours and finishes of the product and the area to inspect.	Sets the field of view, camera resolution and lighting approach.
SKU list	Every product, size and label variant that runs past the inspection point.	Each variant needs a recipe; variants that look alike need a reliable way to tell them apart.

INFORMATION	WHAT TO SEND	WHY IT MATTERS
Defect list	Each fault, what it costs if it reaches a customer, and which faults matter most.	Decides what the station must catch and where limits sit.
Line speed and spacing	Products per minute or per hour, whether speed varies, and the gap between products.	Affects exposure, lighting, trigger method and whether an encoder is needed.
Handling	Conveyor type, orientation, whether products rotate or touch.	The camera needs a consistent view.
Controls	PLC make and model, spare inputs and outputs or network ports, existing reject.	Decides how the result and reject are wired to the line.
Environment	Washdown, dust, heat, vibration, and daylight or overhead lighting near the station.	Drives the enclosure, shrouding and mounting.
Current method	How the fault is found today and the acceptance criteria.	Defines what "defective" means on your line.

Packing and shipping samples

- Pack good and defective samples separately, in labelled bags or boxes.
- Protect defective samples from new damage. A scratch sample with fresh scratches from transit is no longer a clean example.
- Agree perishable, fragile or hazardous products with us before sending, including any safety data sheet.
- Put a packing list in the parcel that matches your sample list.
- Agree whether samples are returned, kept as a reference set for acceptance testing, or disposed of.

We confirm the delivery details and method with you before you ship.

Confidentiality of samples and drawings

Samples, drawings and line video can reveal designs and process details. If any of this is confidential, say so before sending, and agree in writing:

- whether a non-disclosure agreement is signed first;
- who may see the samples and images;
- whether test images are kept after the project, and for what purpose;
- what happens to the physical samples afterwards.

Send only what the inspection needs; external dimensions and the inspected area are usually enough.

What the feasibility conclusion contains

The test ends in a written conclusion, not a sales promise. It sets out:

- which defects were clearly visible, under which lighting, lens and viewing angle, with example images;
- which defects were not visible or not separable from normal variation, and why;
- how the borderline samples behaved, and where a limit could sit;
- the proposed station concept: number of views, camera, optics, lighting and inspection method;
- the conditions it depends on, the risks, and what must still be verified on the line.

A small test set cannot prove a long-term missed-defect rate. It shows the defect can be seen; performance at line speed is measured at FAT and SAT on an agreed set. See [how we deliver a project](#) for the phases that follow.

// CHECKLIST

Printable sample checklist

Tick each item before you ship. Print this page or [download the whole guide as a PDF](#) (same content as this page, version 24 September 2026); no sign-up or email address is

needed. Quantities are agreed with us per project.

Good samples

- ☐ Products from several batches, shifts or production days
- ☐ Every SKU, size and label variant at the inspection point
- ☐ Normal variation: print shade, gloss, cavities, suppliers

Defective samples

- ☐ At least one example of every defect type you need caught
- ☐ Borderline cases: just acceptable and just rejectable, agreed with quality
- ☐ Each sample tagged with an ID, defect type and "pass", "fail" or "unsure"
- ☐ Simulated defects clearly marked as simulated
- ☐ A sample list (spreadsheet) matching IDs to defects

Photos and video

- ☐ Photos of the product at the inspection point, in its real orientation
- ☐ Short video of the line running at normal speed
- ☐ Photos of the space around the proposed camera position
- ☐ Close-ups of each defect with a ruler or scale in the frame

Product and line information

- ☐ Drawings or dimensions of the product and inspected area
- ☐ SKU list and how the running product is selected
- ☐ Line speed, speed variation and product spacing
- ☐ PLC make and model, spare I/O or network ports
- ☐ Existing reject mechanism and compressed air availability
- ☐ Environment: washdown, dust, heat, vibration

Packing and shipping

- ☐ Good and defective samples packed separately and labelled
- ☐ Defects protected from further damage in transit
- ☐ Perishable, fragile or hazardous products agreed with us before sending
- ☐ Return or disposal of samples agreed in advance

Confidentiality

- ☐ Confidential items identified before anything is sent
- ☐ Non-disclosure agreement signed first, if you need one
- ☐ Agreed who may see images and whether they are kept after the test

// FAQ

Questions about sample preparation

What samples are needed for a vision feasibility test?

Good products covering the normal variation on your line, and defective products for each fault the station must catch, including borderline cases, each labelled with its defect type and whether it should pass or fail. Photos or video of the line, product drawings and line data complete the set.

How many good and defective samples are needed to validate inspection?

There is no fixed number for every project. A feasibility test needs enough samples to show every defect type and the normal variation of good product. Acceptance testing at FAT and SAT needs a larger, agreed set, sized by the defects and the risk of a miss. We agree quantities with you before anything is sent.

Can we send photos instead of physical samples?

They help with a first opinion, but do not replace physical samples: what the camera sees depends on the lighting, lens and angle used in the test.

What if we have no real defective samples?

Collect them over time from quality holds or customer returns. A simulated defect can show whether a fault is visible, but mark it as simulated and confirm later on real faults.

Do we need to register or give an email address to use the checklist?

No. The checklist is on this page and can be printed or saved from your browser. You only share contact details if you want to request an assessment.

[How we deliver a project](#) → [Label & print inspection](#) → [Surface defect detection](#) →

RELATED: [Rule-based or deep learning](#) → [PLC & reject integration](#) → [Inspection technology](#) →

[Cost & budget guide](#) →

// NEXT STEP

Ready to send samples?

Tell us about the product and the faults you need to catch. We will confirm which samples to send, how many and how, before you ship anything.

[Start an assessment](#) →