PLANT CHECK · PREPARATION

Questionnaire on your coating line

So that we do not start from scratch on day one.

With this questionnaire we prepare the Plant Check together. The more complete your answers, the more time remains on site for the analysis – and the more precise your action plan will be.

How it works: fill in the questionnaire on your computer or print it out. Not every question fits every line – simply leave anything that does not apply blank. Estimates are welcome; please mark them with "approx.". Send me the questionnaire together with the documents no later than 5 working days before the on-site visit to kontakt@ronsdorf-consulting.de.

I treat all information in strict confidence. On request, I will sign a non-disclosure agreement in advance.

1. Company and contact person

So that I know who I am talking to and what matters to you.

Company, location of the coating line	
Industry and main products	
Contact person for the Plant Check (name, position, phone, e-mail)	
Who decides on measures and investments?	
Reason for the Plant Check	☐ quality problems ☐ costs too high ☐ insufficient capacity ☐ conversion/extension planned ☐ new line planned ☐ other:
What should be better after the Plant Check? Please rank by importance.	
Is there a time frame or a budget for measures?	

2. Parts and requirements

What is being coated – and what does your customer expect?

Materials	☐ steel ☐ galvanised steel (hot-dip / strip galvanised) ☐ aluminium ☐ cast metal ☐ stainless steel ☐ plastic ☐ other:
Typical parts (description, please attach photos)	
Largest part: length × width × height, weight	
Coated surface per part or per hanger load (m²)	
Throughput: parts or m² per hour, per shift, per year	
Number of colours, colour changes per day/week	

Required coating system and film thicknesses (µm)	
Standards and specifications	☐ DIN EN ISO 12944 (corrosivity category: ____ durability: ____) ☐ Qualicoat ☐ GSB ☐ customer's company standard ☐ other:
Appearance requirements (gloss, texture, visible surfaces, defect limits)	

3. Line and conveyor system

An overview of the line layout.

Manufacturer, year of construction, major modifications (when, what)	
Line type	☐ indexed line ☐ continuous line ☐ power-and-free ☐ batch operation / individual booths ☐ other:
Conveyor system	☐ overhead conveyor ☐ power-and-free ☐ floor-mounted drag chain ☐ manual overhead rail ☐ trolleys / racks ☐ robot / handling
Cycle time or conveyor speed (m/min)	
Hanger spacing, hanger size, hanger loading rate (%)	
Sequence of stations in order (e.g. loading → pretreatment → dryer → booth → oven → unloading)	
Is a hall layout available? (please attach)	☐ yes ☐ no
Degree of automation, control system, data acquisition	

4. Pretreatment

Pretreatment determines adhesion and corrosion protection.

Mechanical pretreatment	☐ none ☐ blasting (abrasive: ____) ☐ grinding ☐ other:
Chemical pretreatment – process	☐ spray pretreatment ☐ dip pretreatment ☐ manual cleaning / high pressure ☐ none
Chemistry	☐ alkaline degreasing ☐ iron phosphating ☐ zinc phosphating ☐ thin-film (zirconium/titanium/silane) ☐ pickling ☐ passivation ☐ other:
Chemical supplier and products	
Number of zones, tanks or baths	

Per zone: volume (m³), temperature (°C), treatment time, concentration / pH	Please attach as a list or table.
Rinsing: number of rinse stages, demineralised water, conductivity of the final rinse (µS/cm)	
Bath maintenance and analysis: who, how often, how documented?	
Bath service life, how often are baths renewed?	
Waste water: treatment, discharge, volume per year	
Dry-off oven: temperature, dwell time, heating	
Consumption per year: chemicals, water, energy for pretreatment	

5. Coating

Which processes are in use?

Process	☐ powder ☐ solvent-based liquid paint ☐ water-based liquid paint ☐ dip coating ☐ cathodic electrocoating (e-coat) ☐ other:
Coating system (e.g. e-coat + powder, primer + topcoat)	
Number and type of booths	
Powder: number of guns (automatic/manual), manufacturer, recovery (cyclone/filter), colour change time	
Powder: powder type (polyester, epoxy, hybrid …), consumption kg/year, price €/kg	
Liquid paint: 1K/2K, application	☐ compressed air ☐ HVLP ☐ airless ☐ air-assisted airless (Airmix) ☐ electrostatic ☐ robot ☐ other:
Liquid paint: overspray separation	☐ wet scrubbing ☐ dry separation (filter) ☐ other:
Liquid paint: consumption kg/year, price €/kg, thinner, solids content	
Flash-off zone or flash-off booth: available? Length/time, air volume	
Dip coating / e-coat: tank volume, bath parameters, ultrafiltration, film thickness	
Paint suppliers and data sheets (please attach)	
Estimated transfer efficiency (%)	

6. Dryers and ovens

Curing and drying – often a bottleneck.

Design	☐ continuous oven ☐ box oven ☐ combination booth (spraying + drying) ☐ other:
Heating	☐ gas-fired convection ☐ oil-fired convection ☐ electric ☐ infrared ☐ UV ☐ thermal oil ☐ other:
Length or internal dimensions, volume	
Set temperature and dwell time (min)	
Burner output (kW)	
When was the object temperature last measured (oven data logger (oven tracker))? Result?	
Cooling zone available? Length/time	

7. Air handling and energy

This is often where the largest costs lie.

Supply and exhaust air volumes per booth, flash-off zone and oven (m^3/h)	
Heat recovery	☐ none ☐ run-around coil system ☐ plate heat exchanger ☐ recirculation ☐ other:
Exhaust air treatment	☐ none ☐ TNV / RTO (thermal oxidiser) ☐ activated carbon ☐ other:
Energy consumption per year: gas/oil (kWh), electricity (kWh), compressed air	
Energy prices (€/kWh)	
Operating hours per year (line, ovens, booths)	

8. Environment, permits and safety

Permit	☐ under BImSchG (German Federal Immission Control Act) ☐ building permit ☐ unknown
Solvent consumption per year (t), solvent balance under the 31st BImSchV (German solvent ordinance) available?	
Last emission measurement: when, results (dust, total carbon)	
Waste per year: paint sludge, powder residues, filters, packaging	

Explosion and fire protection: Ex zones, extinguishing system, inspections	
Are there any requirements or open issues from the authorities?	

9. Staff and organisation

People make the quality.

Number of employees at the coating line per shift	Hanging: ___ Coating: ___ Unloading/packing: ___ Inspection: ___ Maintenance: ___
Shift pattern	☐ 1 shift ☐ 2 shifts ☐ 3 shifts ☐ weekend Working days per year: ____
Qualifications and training (e.g. trained coating technicians, manufacturer training)	
Who is responsible for the line (manager, deputy)?	
Servicing and maintenance: own staff or external company? Is there a maintenance plan?	
Where do your employees see the problems?	

10. Quality

How is quality ensured, measured and checked?

Tests	☐ film thickness ☐ cross-cut / adhesion ☐ gloss ☐ colour ☐ hardness ☐ boiling test ☐ salt spray test ☐ visual inspection ☐ other:
Test frequency and documentation (please attach test plan, reports)	
Test equipment (instruments, calibration)	
Reject and rework rate (%)	
Most frequent defects	☐ craters ☐ inclusions / dust ☐ runs ☐ adhesion problems ☐ poor edge coverage ☐ colour deviation ☐ film too thin/too thick ☐ blisters ☐ other:
Customer complaints in the last year (number, causes)	
Certifications	☐ ISO 9001 ☐ ISO 14001 ☐ ISO 50001 ☐ Qualicoat ☐ GSB ☐ other:
Your assessment of the current quality level	☐ 1 – critical ☐ 2 – inconsistent ☐ 3 – solid ☐ 4 – good ☐ 5 – very good

11. Availability and performance

Does the line run when it is supposed to?

Planned operating time per week (h)	
Unplanned downtime per month (number, hours)	
Most frequent causes of downtime	
Availability or overall equipment effectiveness (OEE), if recorded (%)	
Line utilisation (%) and bottleneck station	
Spare parts stock for critical components	

12. Costs and key figures

As far as known – rough figures are sufficient.

Paint or powder costs per year (€)	
Costs per m² or per part, if determined	
Energy costs of the coating line per year (€)	
Personnel costs of the coating line per year (€)	
Disposal costs per year (€)	
Costs of rejects and rework per year (€)	

13. Plans and expectations

Are investments or modifications planned? Which ones, when?	
Are there quotations from plant manufacturers that you would like me to review?	
What have you already tried to solve the problems?	
What must not happen under any circumstances (e.g. loss of production)?	
When would suit you for the on-site visit? Possible weeks:	

14. Documents – please attach, where available

☐ Hall layout or line drawing

☐ Photos or short videos of the line and typical parts

☐ Technical data sheets for paints, powders and pretreatment chemicals

- ☐ Consumption overview for the last 12 months (paint, chemicals, energy, water)
- ☐ Test plan and test reports from recent months
- ☐ Pretreatment bath logs
- ☐ Oven data logger (oven tracker) measurement (object temperature)
- ☐ Maintenance and downtime logs
- ☐ Permit notice and latest emission measurement report
- ☐ Customer specifications, standards, complaint reports

15. Space for further comments

Completed by (name, position)	Date

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Status: October 2026