TROUBLE SHOOTING GUIDE - PART I

POWDER APPLICATION

1.1 POOR FLUIDISATION IN POWDER HOPPER

Powder is supposed to flow like water in the fluid container. Poor fluidization is recognizable in slow and noncontinuous transportation of the powder to the guns. No homogenous powder cloud is achieved.

Possible Causes	Explanation
Powder level too low	Add powder to correct level
Fluidizing air too low or too high	Change pressure Use larger hose diameter
Oil remnants in compressed air	Check filter
Compact or damp powder	Manually loosen powder in hopper
Fluidizing plate clogged / defective	Clean plate or renew
Powder contains too much fines	Check if enough fresh powder is in circuit

1.2 CLOGGING OF THE POWDER FEED HOSES

Deposits form in the powder feed hoses, which sporadically are freed by delivery air and appear as powder puffs on the work pieces. After curing these powder puffs appear as faulty surface elevations.

Possible Causes	Explanation
Feed air pressure too high/low	Reduce/increase pressure
Delivery air moist or oil in pressurized air	Check in-line filters and moisture traps
Material choice of hoses	Check hoses for material quality
Worn venture or pump	Replace worn parts
Too fine powder	Decrease amount of reclaim to hopper Optimize virgin powder ratio
Feed hose too long	Minimize feed hose length

POWDER APPLICATION

1.3 POOR ATTRACTION OF POWDER TO THE COMPONENTS

The powder coating, which should electrostatically adhere to the substrate, falls off – no relevant coating thickness can be achieved.

Possible Causes	Explanation
Incorrect voltage at the gun	Check voltage, clean or peplace gun
Insufficient grounding	Clean grounding points and hangers
Excessive build-up of cured powder	Clean hangers
Worn out venture or pump	Replace worn parts
Too much powder output	Reduce Air flow
Gun distance to part too close, blast effect	Adjust the distance
Gun air pressure too high	Reduce forward air pressure
Film built too high	Reduce powder flow
Insufficient wetting	Check pretreatment

1.4 POOR WRAPPING

With one sided gun positioning only minimal film thickness can be achieved on opposite side.

Possible Causes	Explanation
Powder flow too low or high	Optimize system parameters, adjust air flow
Insufficient grounding	Use clean hooks
Supplemental air flow is too high or low	Adjust air speed and powder cloud
Gun voltage too high	Adjust voltage to suit parts
Insufficient charging of the powder	Adjust high voltage; consult powder supplier
Poor or wrong positioning of the parts	Adjust hanging configuration

POWDER APPLICATION

1.5 POOR PENETRATION INTO RECESSES

Despite the physical condition it is possible to achieve a minimum coating thickness in the corners. Extreme film thickness variation are noticeable.

Possible Causes	Explanation
Too low powder delivery	Increase powder flow
Air speed too high	Adjust equipment controls
Powder flow too high	Adjust equipment controls to suit parts
Poor grounding	Check and improve grounding
Insufficient charging of the powder	Adjust voltage; consult powder supplier
Incorrect spray pattern	Try different spray nozzles
Too high voltage	Reduce voltage, so that surface closest to the gun do not repel powder
Poor gun placement	Adjust gun position to enter more directly into resessed area
Powder too fine	Reduce ration of relaim to hopper, contact powder supplier

1.6 FILM THICKNESS ON COMPONENT TOO HIGH

Powder coat layer shows uneven surface prior to curing, after curing shows orange peel or pinholes.

Possible Causes	Explanation
Excessive powder delivery	1. Reduce powder feed to gun 2. Increase distance between gun and part
Coating time too long	Lower the coating time / increase line speed
Unfavorable geometry of parts	Change hanging or gun configuration
Gun voltage too high	Reset gun voltage
Too much pre-heat (if used)	Reduce pre-heating

POWDER APPLICATION

1.7 FILM THICKNESS ON COMPONENT TOO LOW

Substrate shows through and powder coat has grainy flow.

Possible Causes	Explanation
Powder delivery too low	1. Set correct powder feed pressure 2. Check if powder venture is the correct size, clean and set correctly
Coating time too short	Increase time by reducing line speed
Insufficient charging of powder	Adjust voltage
Faraday cage effekt	Adjust voltage and forward air flow
Surface area of hanger too large compared to the surface area of work piece	Reduce size of hangers
Damp powder	Remove powder and replace. Ensure all powder coatings are kept sealed until required in use
Insufficient grounding	Use clean hooks, avoid thin hooks
Lowel level of powder in fluid hopper	Check minimum indicator

1.8 APPEARANCE LOOKS UNEVEN AND BROKEN BEFORE CURING

Possible Causes	Explanation
Back ionisation	1. Reduce Voltage 2. Check grounding 3. Reduce deposition rate 4. Ensure no moisture in in the system 5. Move gun further away from part

1.9 INSUFFICIENT WET OUT OF THE SUBSTRATE

Possible Causes	Explanation
Too high air pressure	Reduce air pressure to fluid bed
Too fine powder	1. Decrease amount of reclaim powder 2. Check ration of virgin Powder