Powder Color Changing system is a clean and fast color changing system that minimizes production interruptions for multi color powder coating lines.

**Powder Color Changing concept**
In order to improve this technology, ABB has developed a clean and fast color changing system on the application side of the process, which will minimize production interruptions for multi color powder coating lines. These systems run flexible color changes between coated parts, which correspond to typical color change times of 10-15 seconds, similar to liquid paint finishing systems.

Typical applications are automotive color-key and color-specific primer surfacer systems, future powder base coat systems and other multi-color metal finishing systems in general industry. The mixed color overspray is collected and reused either in coating processes, which do not demand high color standards in the same manufacturing line, or in other applications inside or outside the same plant. It is important to note that the powder paint overspray remains to be a paint material, even if the color is mixed, rather than hazardous waste sludge as in typical liquid paint finishing systems.

In order to use the proposed system optimally, it is essential to employ a powder applicator with high primary transfer efficiency, such as the ABB Internally Charged Gun (IC Gun). It will reduce the amount of the mixed color overspray and improve the total system efficiency.

**System components**
- Powder applicator (ABB IC Gun)
- Powder color changing block
- Powder feeding injector pump
- Feeding hopper
- Hopper weighing scale

**Color changing block design**
The powder color changing block consists of a central channel to which powder colors from separate hoppers are fed at 90 degrees. The powder color is switched by means of pneumatically controlled pinch valves. The color changing process is made of an optimum sequence of hose and block purges. In order to minimize any paint agglomeration in the valve manifold, each pinch valve is purged before being closed.

3 color PCC valve manifold consists of:
- Feeding injector pump per color and applicator
- Open/close inlet valve per color attached to central channel block
- Inlet valves attached sideways to central channel and removable for maintenance
- Purge valve on entry side of central channel
- Central channel outlet connected to powder applicator
PCC - Powder Color Changing system

PCC performance characteristics

- Number of colors tested for 3-4 colors
  - expandable to any required number
- Powder flow rate
  - 50-300 g/min per color
- Powder hoses
  - 10-11 mm ID 3/8" - 7/16"
- Simple, small size and low cost solution adaptable to any existing system
- Clean color changing without cross contamination
- Short color changing time, typically less than eight (8) seconds
- Minimized color changing paint material loss
  - below 10 g/color change
- Complete air pulse purge of all valves and hoses during color change
- Minimized risks of powder impact fusion, low friction material inserts in the color changing interior
- Fully automatic color changing controller as PLC switch system
- Tested and validated by GM in November 2000

The PCC - Powder Color Changing system is suitable for all types of powder coating materials, ranging from primer surfacers to topcoats. It is recommended for use in automotive car and truck assembly plants, automotive supplier plants and general industry applications.