ABB’s PixelPaint non-overspray technology helps auto makers respond to the demands of car buyers. When creating popular two-tone or customized paint jobs, it eliminates the need for time-consuming masking and demasking. This significantly reduces time and cost, while also improving productivity and expanding the possibilities of customization.

**Key benefits**
- Meets consumer demand for customization
- Eliminates the double cycle time required for two-tone applications
- Removes the need for costly and time-consuming manual masking/demasking
- Major reductions in CAPEX and OPEX
- Perfect non-overspray application for roof and engine bearer painting
- Paint complicated images with high resolution
- Maintain a sharp edge with 100 percent transfer efficiency

**Meeting customer trends**
The growing demand for vehicles featuring individualized paint schemes is calling for painting solutions that can provide the flexibility, precision and quality needed to ensure that customers get what they want.

Satisfying this demand is now made easier with ABB’s PixelPaint solution, which incorporates an inkjet head, dosing control package, an IRB 5500 paint robot and easy-to-use RobotStudio programming software for two-tone and decorative painting applications. Enabling designs to be printed onto the vehicle body, PixelPaint significantly cuts the time and cost of adding contrast color or a personalized paint finish or design.

**No masking required**
Previously, applying a contrast color on to bodywork has required masking between paint processes. This task can involve multiple operators per shift to handle both masking and de-masking tasks.

ABB’s PixelPaint non-overspray two-tone painting application removes the need for manual masking/demasking, significantly cutting the time and material required for two-tone paint jobs.
Open the way to CAPEX and OPEX savings

PixelPaint presents scope for significant reductions in both capital and operating costs. By enabling the complete paint scheme to be applied in a single pass, the same paint facility can be used throughout, with no need to build or equip a separate area to add a second color or design. This can help achieve savings running into millions of dollars can be achieved by eliminating the need to build an extra paint shop to do the two-tone application as well as the consequent utilities savings resulting from reduced power, water and compressed air consumption.

With 100 percent of the paint being applied to the bodywork surface, there is also zero overspray, greatly reducing operational costs and improving environmental performance by ensuring that no paint is lost to the drain.

Increase your productivity

With a customized paint job able to be carried out in a single pass, cycle times are reduced by around 50 percent. When added to the improved utilization of manual workers, this can result in from 20 to 100 percent improvement in productivity.
PixelPaint non-overspray technology explained

Non overspray is a disruptive way of applying paint onto car bodies. With PixelPaint, it is possible to reach 100 percent paint transfer efficiency, compared to rates of 80 percent available with electrostatic painting.

The result of extensive research and development, PixelPaint utilizes a variable droplet control method combined with a pioneering inkjet nozzle design to enable fast and accurate high-resolution printing of two-tone and customized designs directly onto vehicle bodies.

PixelPaint enables droplets to be applied at sizes ranging from 20 to 50µm at a rate of over 1,000 droplets per second, allowing precise control of thickness and overlapping.

Key to PixelPaint’s performance is the design of the nozzle. The inkjet printer head features over 1000 nozzles, each of which can be individually controlled. By enabling precise application of the amount of paint applied to a given area, PixelPaint ensures that images are printed to the highest quality whilst reducing paint wastage.

**Improved performance, lower costs**

100 percent paint transfer efficiency means lower operating costs

- Less air treatment needed
- Paint savings
- Reduce VOC
- Simple scrubber
- Less contamination
- No high voltage

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<table>
<thead>
<tr>
<th>1. Droplet jetting solution</th>
<th>2. Control droplet size</th>
<th>3. More than 1000 nozzles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>Middle</td>
<td>1</td>
</tr>
<tr>
<td>Drop x 1000</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td></td>
<td>20 µm</td>
<td>50 µm</td>
</tr>
</tbody>
</table>

PixelPaint uses a droplet rather than flow jet solution to enable improved precision. PixelPaint’s clever nozzle design allows paint to be applied at a rate of over 1,000 droplets per second.

The size of the paint droplets can be varied from 20 to 50µm, enabling improved control of film thickness and overlapping.

PixelPaint incorporates over 1,000 nozzles within the inkjet printer head, each of which can be individually controlled to apply high quality high-resolution images onto the vehicle body.
**Key features at a glance**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High DPI painting head</td>
<td>Inkjet head incorporates over 1,000 independently controlled nozzles, offering sharp edges and invisible overlapping</td>
</tr>
<tr>
<td>Image data painting</td>
<td>Allows images to be painted to a high level of detail</td>
</tr>
<tr>
<td>High precision robot</td>
<td>Choice of IRB 5500 painting robot or high precision handling robot (seam sealing robot), depending on requirements</td>
</tr>
<tr>
<td>User-friendly programming tool</td>
<td>PixelPaint uses ABB’s RobotStudio offline programming tool to allow easy set-up and testing</td>
</tr>
</tbody>
</table>

**Examples**

![Image of paint patterns](image)

**Key benefits at a glance**

1. **Meet market trends**
   Meet market trends for customization and personalization of wide range of vehicles, including standard, SUV, crossover and EV automobiles.

2. **Faster and more flexible**
   PixelPaint enables a second color or design to be applied in the existing line without reducing cycle time and adding manpower. Also avoids need to invest in a special line, reducing costs and saving space.

3. **Reduce wastage**
   PixelPaint’s inkjet technology eliminates overspray, significantly reducing paint wastage.

4. **Problems solved**
   PixelPaint overcomes the typical challenges associated with non-overspray applications, including paint properties, contamination, sharpness of the edges, cycle time, robot precision and programming.