RB1000i Series Presentation

ABB Ability™ Connected Atomizer

Carrie Zou – Global Product Manager - Paint
Content

- First in class in terms of performance
- Target customer & markets
- Customer merit
- Data sheet
First in class in terms of performance

Key features and benefits

- Modular concept – easy to maintain
- Better pattern control for higher T.E.
- Longer life time of parts
- Low contamination
- Reduced energy consumption
- Easy to maintain
- Less weight
- MTTR improvement
First in class in terms of performance

Smart thanks to the multiple sensors

- RFID for all critical parts checked at application
  - Individual follow-up of components
  - The right part in the right condition with the right parameters for the perfect application
- Vibration sensors
  - Gyroscope
  - Temperature
- Modular embedded sensor
New technology

Sensor and RFID

- IoT (Internet of Things) - the first function in the coating industry
  - RFID (Radio Frequency ID) equipped
  - Vibration and gyroscope sensors equipped

- Air motor shaft lock function
First in class in terms of performance

Improvement on performance

- RFID
  - Bell cup
  - SA nozzle
  - Air motor
- Vibration, gyro sensor
- Air motor shaft lock
Differentiated value proposition

ABB Ability™

Improvement on performance

- RFID
  - Bell cup
  - SA nozzle
  - Air motor
- Vibration, gyro sensor
- Air motor shaft lock
## Target customer & markets

### Paint solution and paint type

<table>
<thead>
<tr>
<th>Paint solution</th>
<th>RB1000i</th>
<th>SSD</th>
<th>SAD</th>
<th>S2K</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automobile</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Interior</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Bumper</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Part</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>industry</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

### Paint type

<table>
<thead>
<tr>
<th>Paint type</th>
<th>RB1000i</th>
<th>SSD</th>
<th>SAD</th>
<th>S2K</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primer paint</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Base paint</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Clear paint</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Solventborne</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Waterborne</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

**Solventborne** 1K ✔ ✔ - 2K ✔ - ✔
**Waterborne*** 1K ✔ ✔ - 2K ✔ - ✔

*Applicable to non-electrostatic type only

---

© ABB
June 17, 2018 | Slide 8
Customer merit

Modular design concept

Head module
- Micro valve x 4

Rear module
- No valve
- MC valve
  - For S2K
  - For SAD

Internal charge
Body module

External charge
Electrode & Bracket module

- Common spare parts
- Reduce spare parts stock
- Usable parts from other stage in emergency case
- Easy to switch to different models

S2K
SAD
SSD
Customer Merit

Improved conventional atomizer performance + IoT function

**Atomizer**
- Modular concept, common spare parts
- Light weight 8.7kg
- BOC (Bell Outside Cleaning)
- SFC (SA nozzle Face Cleaning)
- Super pattern control
- 6 bar air pressure motor
- Paint waste 6.7cc inside atomizer
- Bell cleaning 25cc / 1.5sec
- Built-in FO cable
- 1-step Bell cup removal
- Robust and long life Air Motor
- Quick valve replacement
- Zone 1 certification

**ABB Ability**
- Identification of parts number
- Before production;
- Confirmation of right bell cup, air motor, SA at right place;
- Genuine parts identification;
- Parts Life Management;
- Predictive maintenance;
- Smart diagnostic;
Customer Merit

BOC - Bell Outside Cleaning & SFC - SA nozzle Face Cleaning

**Items**

- BOC & SFC

**Merit**

- Keep clean, keep good quality
- Less maintenance cycle

BOC (Bell Outside Cleaning)

SFC (SA nozzle Face Cleaning)
Customer Merit
BOC - Bell Outside Cleaning & SFC - SA nozzle Face Cleaning

– Clean the following 3 parts simultaneously
  • Bell cup front surface
  • Bell cup outside (BOC; Bell Outside Cleaning)
  • SA nozzle face (SFC; SA nozzle Face Cleaning)

– Contaminate the bell cup intentionally and demonstrate the cleaning

SA nozzle face
Bell cup front surface
Bell cup outside
Customer Merit

BOC - Bell Outside Cleaning & SFC - SA nozzle Face Cleaning

Cleaning conditions: Flushing solvent flow rate: 1000 cc/min, Flushing time: 1.0 sec, Usage: approx. 17 cc
## Customer Merit

**Merit**

- Less over spray, less paint waste
- Reduce paint usage
- Less booth cleaning
- Less contamination

- Spray both interior & exterior car body available by D40mm

**Items**

Super Pattern Control: Large pattern

- 40mm Bell cup
  - Effective pattern size: 400 mm
- 70mm Bell cup
  - Effective pattern size: 500 mm

Super Pattern Control: Small pattern

- 40mm Bell cup
  - Effective pattern size: 60 mm
- 70mm Bell cup
  - Effective pattern size: 250 mm
Customer Merit

Items

• Built-in FO cable & Mixer

Merit

- Less damage risk of Fiber cable by solvent
- Easy rotation adjustment
- Less paint stuck risk, shorter mixing area
- Less cleaning time and flushing solvent consumption
- Easy replace mixer
**Customer Merit**

### Items
- 1-step Bell cup removal

![Shaft Locking Cylinder](image)

### Merit
- Quick removal bell cup (1 min.)
- No tool required to remove bell cup
- Safety by interlock, no risk touch rotated bell cup
**Customer Merit**

**Items**
- Quick valve & Mixer replacement

**Merit**
- 2 minutes valve replacement
- Mixer replace without disassemble air motor
- Quick recovery
- Easy maintenance
## Customer Merit

<table>
<thead>
<tr>
<th>Items</th>
<th>Merit</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT</td>
<td>Easy; parts management</td>
</tr>
<tr>
<td>RFID (Radio Frequency Identification)</td>
<td>Alarm; incorrect parts assembly</td>
</tr>
<tr>
<td>ID-Bell</td>
<td>RFID Parts</td>
</tr>
<tr>
<td>ID-SA</td>
<td>• Bell cup</td>
</tr>
<tr>
<td>ID-Air turbine</td>
<td>• SA nozzle</td>
</tr>
<tr>
<td></td>
<td>• Air turbine</td>
</tr>
</tbody>
</table>
Customer Merit

Items
- IoT
  • Sensor (option)

Merit
- Gyro
- Vibration
- Detect; unbalance of bell cup
- Detect; damaged air motor
- Detect; gyro speed (considering air motor damage)
### Specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell cup</td>
<td>φ70 (BOC), φ40 (BOC)</td>
</tr>
<tr>
<td>Shaping air nozzle</td>
<td>Function</td>
</tr>
<tr>
<td></td>
<td>Super pattern control function</td>
</tr>
<tr>
<td></td>
<td>SA nozzle face cleaning (SFC) function</td>
</tr>
<tr>
<td>Effective spray pattern width</td>
<td>φ70 250~500mm</td>
</tr>
<tr>
<td></td>
<td>φ40 60~400mm</td>
</tr>
<tr>
<td>High voltage</td>
<td>Charging type</td>
</tr>
<tr>
<td></td>
<td>Internal charge</td>
</tr>
<tr>
<td></td>
<td>Voltage applied</td>
</tr>
<tr>
<td></td>
<td>Max. -90 kV</td>
</tr>
<tr>
<td></td>
<td>HV current</td>
</tr>
<tr>
<td></td>
<td>Max. 150 μA</td>
</tr>
<tr>
<td>Rotation speed</td>
<td>Set rotation speed</td>
</tr>
<tr>
<td></td>
<td>Max. 60,000 rpm</td>
</tr>
<tr>
<td>Weight *01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approx. 8.8~9.0 kg</td>
</tr>
<tr>
<td>Total air consumption *02</td>
<td>φ70 695~1565 Nl/min</td>
</tr>
<tr>
<td>Flow rate <em>03</em>04</td>
<td>Paint</td>
</tr>
<tr>
<td></td>
<td>φ70 100~1000 cc/min</td>
</tr>
<tr>
<td>Sensor *05</td>
<td>Vibration sensor</td>
</tr>
<tr>
<td></td>
<td>Gyroscope</td>
</tr>
<tr>
<td></td>
<td>Temperature sensor</td>
</tr>
<tr>
<td>RFID tag *06</td>
<td>Bell cup</td>
</tr>
<tr>
<td></td>
<td>SA nozzle</td>
</tr>
<tr>
<td></td>
<td>Air bearing motor</td>
</tr>
</tbody>
</table>

*01 The weight differs depending on the specification
*02 These are the values when the flow rate is 400 cc/min. For other conditions or details, please contact ABB.
*03 The maximum flow rate differs depending on paint viscosity or built-in paint tube
*04 These are general values and do not necessarily guarantee quality.
*05 The sensor is optional
*06 A reader of the RFID tags is optional
RB1000i – connected atomizer for ABB Ability
Will help you secure high paint quality and uptime