

**New BD-50 Replication  
Line  
Lapis System**

**Frankfurt, Germany  
May 2008**

**Marubeni**

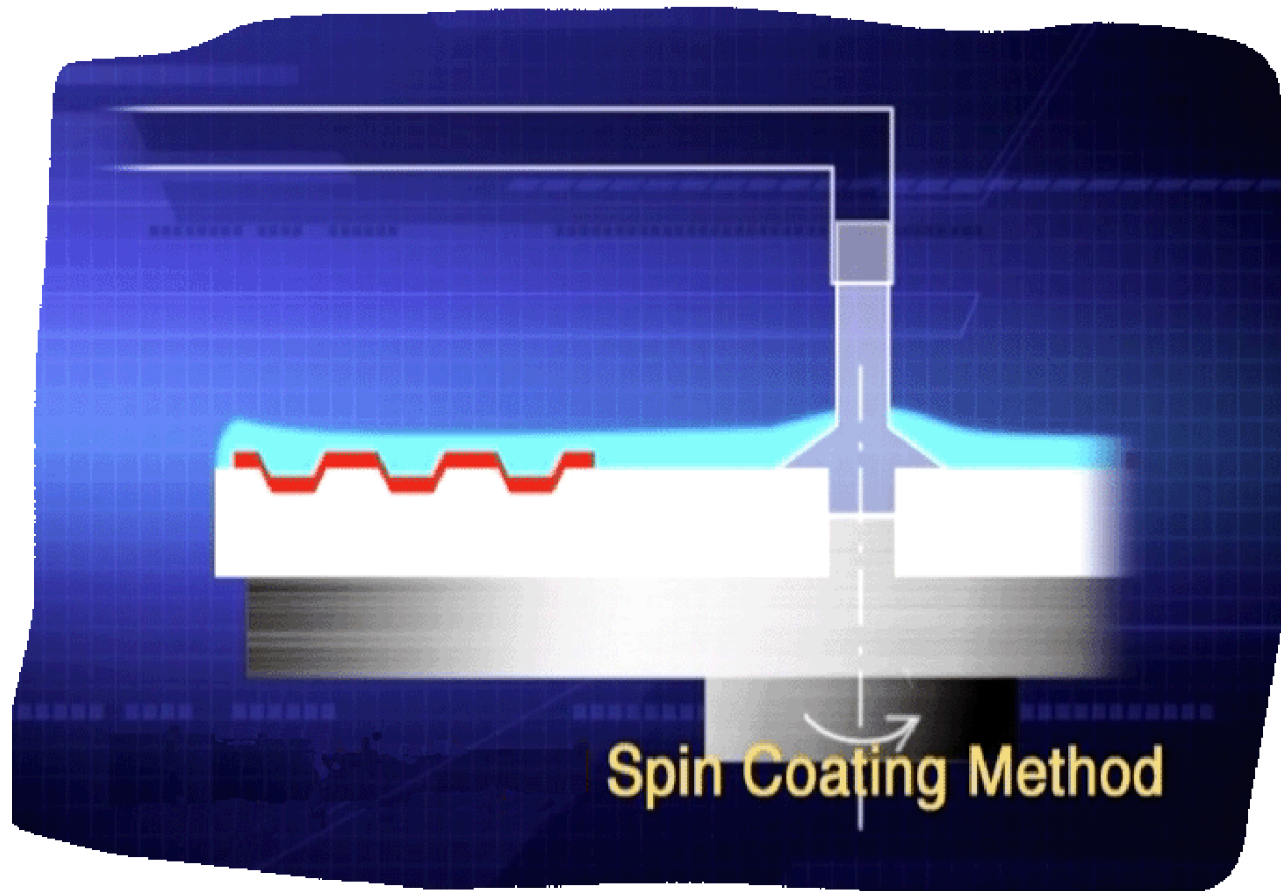
# **AZUL Replication Line**

---

- **First generation BD-50 replication line in production since 2006.**
- **Main characteristic**
  - 1. Four kinds of UV lacquers were used.**
  - 2. Required a cap for spin coating to control lacquer thickness.**
  - 3. Vacuum bonding was applied for embossing layer 1.**

# AZUL Replication Line

---



# **“Lapis” Replication Line**

---

- **Second generation BD-50 replication line**
- **Main Characteristic**
  1. **Two kinds of UV lacquers are used.**
  2. **Removal of the cap for spin coating.**
  3. **Removal of the vacuum bonding**

# **“Lapis” Performance**

---

- **Cycle time : 4.0 sec. or less**
  1. **Line is designed to run 3.5 sec.**
  2. **Line speed is attributed to injection molding machine's speed.**
  3. **Yield: 80% or better**
- **How to achieve**
  1. **Two spin coating units are applied for each lacquer to double spin time.**
  2. **No more vacuum bonding to eliminate cumbersome and time consuming process.**

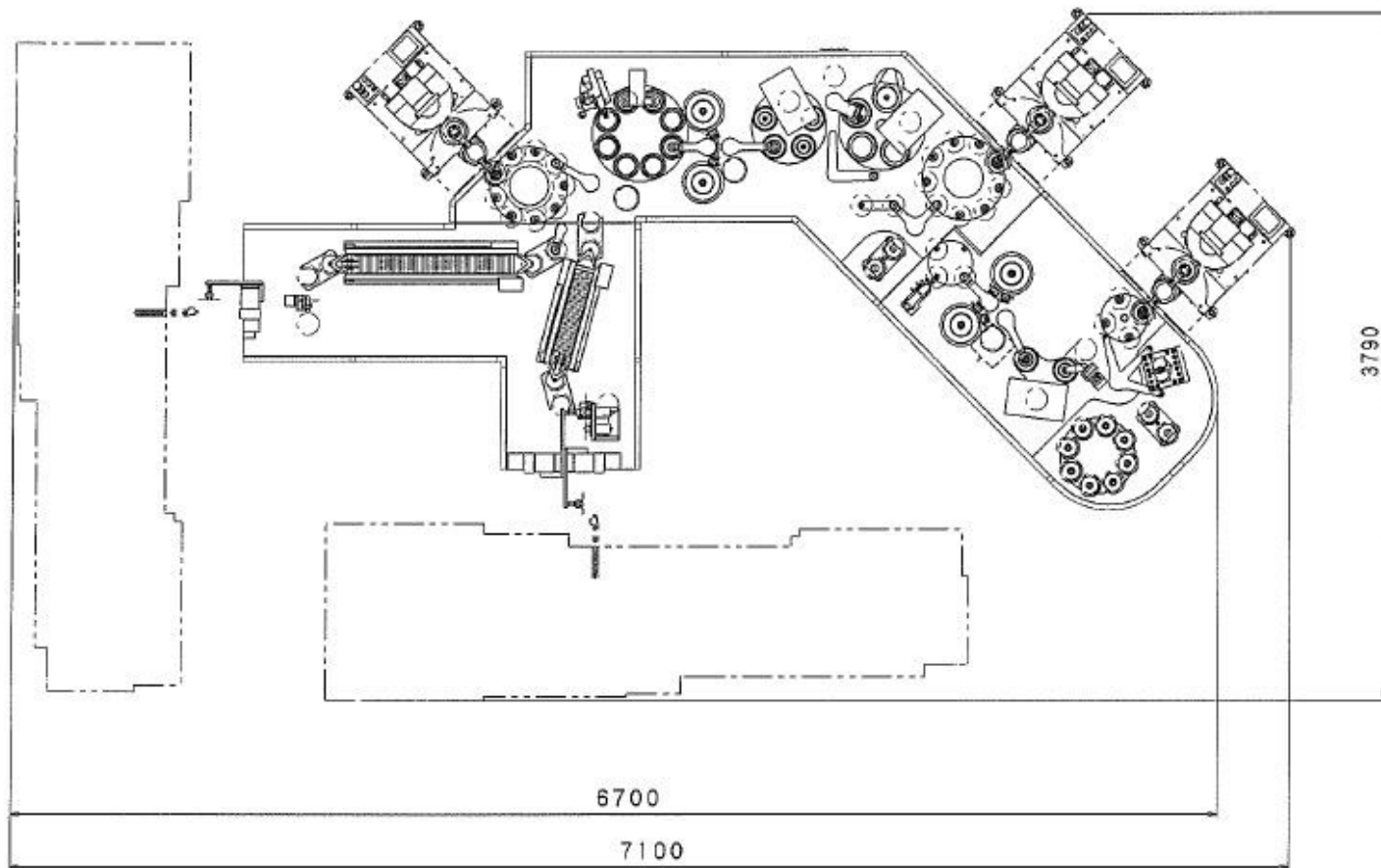
# UV Lacquers

---

- Only two lacquers are applied.
  1. First lacquer for plastic stamper embossing
  2. Second lacquer for cover layer  
This lacquer includes Hard Coat function.

**Note: Both lacquers are totally recyclable.**

# “Lapis” Layout



# **Future objectives**

---

- **Faster cycle time, especially molding process**
- **Over all better performance**
- **Recycle for PC stamper substrates**

## **Marubeni/Origin developed DVD-14 and -18**

- **For this application, PMMA substrates were used as a plastic stamper.**
- **For plastic stamper for BD Lapis line, PC is used instead, for stable process and recycle of PC resin.**