

## Technical Instruction

# 6-Axis Robot Milling Station for IP Weakening



MSZ-RM-RB160EF

**Zhejiang Zhenbo Precision Machinery Co.,Ltd**

by Alex Lee

# Milling Scoring

for **PAB Tear Line**

**MP SONIC** *Reliable Technology*





## **IP Scoring** *for* **PAB Tear Line**

*Ensure the  
successfully explosion  
out of airbag by the  
designed tear line,  
as the last guarantees  
the life of passenger.*



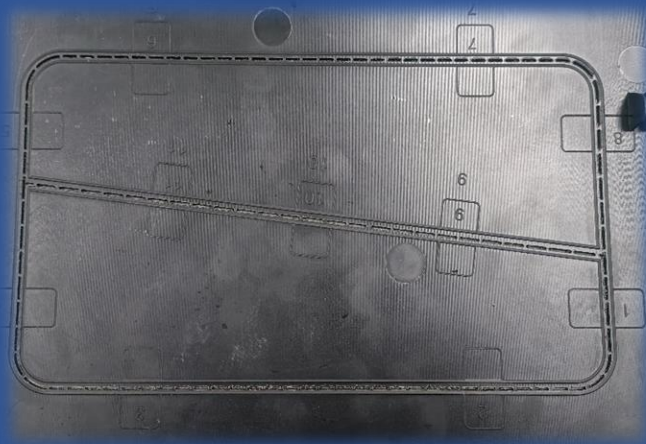
**MP SONIC** *Reliable Technology*



## Main Description

**CNZHENBO**  
臻博机械

**MP Sonic**  
Welding and cutting system



Machine weakens automotive dashboard material to gain the invisible tear line of safety airbag by milling Scoring with high spindle. Machine applies high precision 6-axis robot to realize scoring action through orbit-programming.

### Main Features:

1. High Speed Milling System;
2. Blade initial position check System;
3. Vacuum Pump support base fixture to hold parts tightly;
4. Water chiller system for tooling cooling down;
5. 6-Axis robot precision control with trajectory programming;
6. Automatic front door at front operation position, safety-lock door for maintenance at rear side;
7. Poke Yoke Support System avoid zero presence operation;
8. GT system support system for precision loading control;
9. Fixture precision positioning (dwell system);
10. Quick tooling change-over system;
11. Industrial air conditioner to control cabinet system;
12. Milling bit length checking system;
13. Electrical cabinet system controlled by PLC;
14. HMI Set panel system;
15. MES Support system.



## Main Functional Control

- The working table is designed with quick tool change, which takes about 5 minutes when tool change.
- The spindle is cooled by water circulated from chiller. The water temperature and flow rate are monitored by system. In case they are out of limit, the system will send alarm and the frequency converter will stop the spindle. The current and rotation rate of spindle are controlled by frequency converter. In case of overcurrent or abnormal rotation rate, the spindle will be stopped immediately. Chiller remains water temperature at 20 degree C. In case temperature is out of range, spindle will be stopped via switch valve.
- Service back door is equipped with auto lock system to insure safety requirement
- The machine contains fixture recognition function, the robot can automatically find corrected program.
- The machine is compatible to two cavity fixture of LHD & RHD.
- **The machine will automatically measure milling bit length and also make compensation for robot arm change due to expanding with heat & Contracting with cold, in order to make remaining thickness stability.**
- **The machine has sensor to detect fixture position correctly.**
- Only when the part is accurately positioned on fixture, the PLC will inform robot to start milling. Robot will not start in case vacuity does not reach set value. During weakening, in case of sudden vacuum leakage or loss, machine will automatically punch hole on part for NOK.
- The Machine is applicable to the fixture with movable OK punch design, for easy load & unload.
- The Machine has Poke Yoke function to avoid product being weakened 2<sup>nd</sup> time.
- Option: with basic traceability function, including one gun scanner and related program.



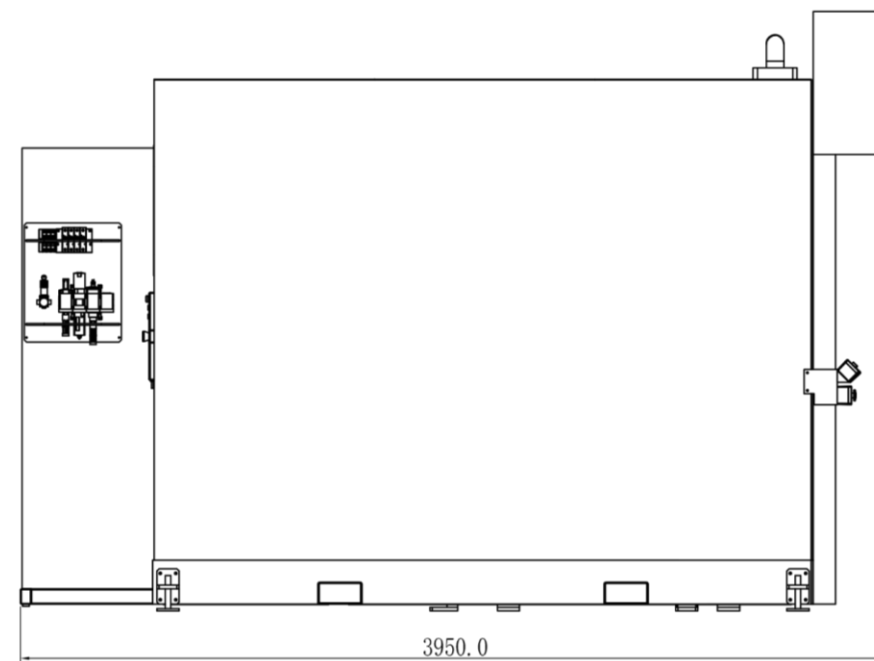
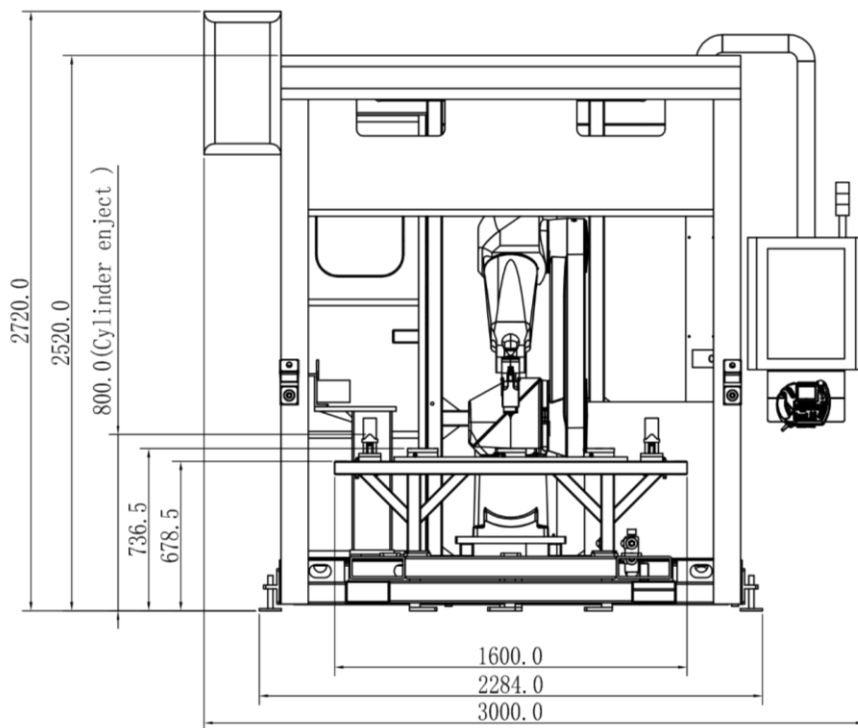


## Specification Parameters

**CNZHENBO**  
臻博机械

**MP Sonic**  
Welding and cutting system

1. Model Code: MSZ-RM-RB160-EF;
2. Dimension: 3000\*3950\*2720 (mm);
3. Power source: 380V, 3P, AC, 50/60Hz;
4. Air Source: 0.6Mpa;
5. Robot System: Staubli RX160;
6. Robot Repeat Precision:  $\pm 0.03\text{mm}$ ;
7. System Precision:  $\pm 0.15\text{mm}$ ;
8. Working Room Temperature:  $5^{\circ}\text{C}\sim 45^{\circ}\text{C}$



# Thanks

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