

# THERMAL SPRAY COMPONENTS

## AMT VPCS Vacuum Process Control System

The vacuum process control system is a special designed AMT separate vacuum controller for reliable vacuum production systems. The control system is equipped with a type SIEMENS PLC in combination with a SIEMENS color touch screen panel.

In automatic mode the system runs the following sequences:

- **Pump Down Sequence**

The system starts to pump down after operator has closed the chamber door while the automatic cycle is activated. After the chamber has been evacuated, the system is backfilled with Argon automatically.

- **Coating Sequence**

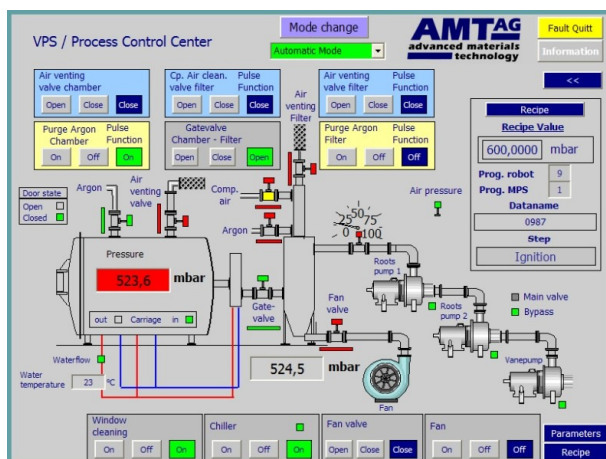
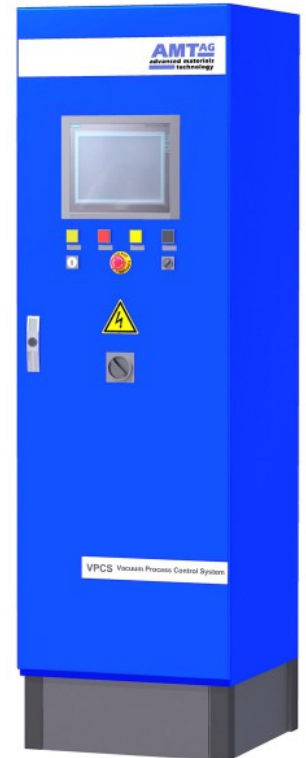
After the vacuum chamber has been backfilled with Argon, the coating sequence will be activated automatically. The proper part coating program, activated by the operator, runs the loaded part (or in case of a multiple part handling the complete batch) in a fully automatic mode with the following sequences: pre-heating, cleaning with transferred arc and coating the work pieces.

- **Venting Sequence**

After the coating cycle is completed the venting sequence starts automatically.

The following sequences and functions are controlled, monitored and guaranteed by the vacuum process control system:

- **Stable and reproducible working pressure**
- **Fast pump down time**
- **Pressure variations**
- **Gas flow variations**



| Step           | Program number | Robot   | Plasma | Value TA | Amp  | Pol | Value VPS (mbar) | set cycle         | actual cycle |   |
|----------------|----------------|---------|--------|----------|------|-----|------------------|-------------------|--------------|---|
| Start          |                |         |        |          |      |     | 500,000          |                   |              |   |
| Ignition       | 10             | 1       | 0      | P        |      |     | 600,000          |                   |              |   |
| Sputter        | 4              | 2       | 1      | N        |      |     | 650,000          | 1                 | 0            |   |
| Preheat        | 5              | 3       | 0      | P        |      |     | 700,000          | 1                 | 0            |   |
| Process 1      | 1              | 4       | 0      | N        |      |     | 500,000          | 1                 | 0            |   |
| Process 2      | 2              | 5       | 0      | P        |      |     | 600,000          | 0                 | 0            |   |
| Process 3      | 3              | 6       | 0      | N        |      |     | 700,000          | 0                 | 0            |   |
| Total cycle    |                |         |        |          |      |     |                  | Amount of cycles: | 2            | 0 |
| End sequence 1 |                |         |        |          |      |     |                  | 300,000           | ON           |   |
| End sequence 2 | Argon cambre   | 600,000 | mbar   |          |      |     | 500,000          | OFF               |              |   |
| End sequence 2 | Argon filtre   | 600,000 | mbar   |          |      |     |                  |                   |              |   |
| End sequence 3 | Argon cambre   | 700,000 | mbar   | 30       | sec. |     | 500,000          | OFF               |              |   |
| End sequence 3 | Argon filtre   | 999,000 | mbar   | 60       | sec. |     |                  |                   |              |   |

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