Reciprocating Vent Gas Recovery Compressors in Solar Grade Polysilicon production plant using CVD technology

- **Reliable and safe.** Our experience is the basis for our compressors for mixtures of Hydrogen, Hydrochloric Acid, Di-/Tri-Chlorosilanes and Silicon Tetrachloride.
- **Easy to maintain.** The design facilitates maintenance by the end user.
- **Safe and clean.** All compressor components in contact with the process gas are cleaned and pickled for this specific application. They are assembled in special assembly rooms, free of dust and other contaminants.
- **Flexible solutions.** Large single compressors can be substituted by a number of smaller compressors running in parallel.
- **Adaptable** to the various requirements of small, medium and large industries.

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### Process data

<table>
<thead>
<tr>
<th>Molecular weight</th>
<th>Capacity Nm³/h</th>
<th>Suction pressure min. - maxbar (a)</th>
<th>Delivery pressure bar (a)</th>
<th>Compressor model</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 6</td>
<td>3 500</td>
<td>4 - 6</td>
<td>15 - 17</td>
<td>MS2 - 1</td>
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</tbody>
</table>

**The compressors listed are just our most requested models: other models are available upon request.**

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### Technical Standard

SIAD’s certified standard for the polysilicon sector specifies:

- **Double purging**, at the distance piece (Nitrogen) and main rod seal packing (Hydrogen), to ensure zero contamination of the process by external agents.
- **Compressor valve disks** radiused for optimised flow, to prevent valve blocking by silanes, and also providing the energy required to drive the gas through the valve.
- **Thermoplastic disks**, rather than metal plates, for the compressor valves: thermoplastic disks, due to their flexibility, conform better to the seat of the valve thus providing an excellent hermetic seal.
- **Pressure measurement** at the face membrane rather than in the tubing, to prevent tube blockage by the silanes.
Reciprocating compressors have the fundamental task of recompressing to medium/high pressures vent gas mixtures downstream of process reactors. The compressed gas is sent to gas recovery plants, so that the major components (Hydrogen, HCl, Silanes and Silicon Tetrachloride), once distilled, can be returned to the process, thus increasing the efficiency of the plant by reducing its gas consumption.

Global Service Division: a complete range of services

To reduce operating costs and to maintain our compressors in conditions of maximum efficiency, SIAD Machine Impianti offers clients a complete range of services, as well as a network of Certified Service Centers run by qualified technicians that extends across all five continents.

Activities

- Original parts
- Services in the field
- Technical support
- Refurbishment and upgrade
- Engineering services:
  - analysis
  - revamping
  - monitoring-diagnostics
- Training

Find out more about our range of services at www.siadmi.com

For further information: siadmi_compr@siad.eu