Vulcanization Technology

The new machine generation: flexible machine configuration through self-sufficient modules

The machine exhibit represents the machine generation of the future.

Different scientific evaluations, tests and simulations that were carried out in the past time, led to fundamental changes in the machine design and the specific functions of each machine module.

The flexible configuration option of machine segments are particularly noteworthy. Their combination is always based on the most sensible vulcanization characteristics of the elastomer and the associated form of energy.

The constructive decoupling between product cavity and stand of the machine offers new potential for integration of customized solutions.

Essential machine features

- flexible choice of module arrangement and form of energy
- independent use of individual modules in existing vulcanization processes
- simple integration of additional customer requirements
- extended machine features and optimized design in terms of energy efficiency
- Industry 4.0 equitable, app-based machine operation

Modular machine design:
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1. **Module** Product infeed and hot air inlet
   - height adjustable profile touch roller
   - flow-optimized 360° air inlet
   - conveyor belt deflection
   - improved thermal insulation
   - dimensions of the product cavity adjustable
   - optional height adjustment of the cavity

2. **Module** Microwave
   - 0.5 kW UHF Solid State
   - semiconductor based frequency variation
   - novel UHF profile feedthrough
   - digital display of power decoupling

3. **Module** Heating
   - flow-optimized channel geometry
   - continuous electrical channel width adjustment
   - efficiency increase through flow optimization
   - built-in 20 kW electric heating
   - cleaning of heating registers possible
4. Module Exhaust

- exhaust at machine end
- flow-optimized arrangement
- process air flow in circulating- or fresh air mode
- air velocity modulation
- no fumes escaping from the machine

5. Module Belt drive and tension device

- PTFE belt, speed 0.5-60 m/min
- easy belt change possibility
- pneumatic belt tensioning device
- automatic belt tracking
- optional station exhaust
- safety grid and soundproof hood
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<th>Summary of technical data</th>
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<tr>
<td>Machine dimensions LxWxH</td>
<td>4.5 x 1.1 x 1.2 m</td>
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<tr>
<td>Profile dimension WxH</td>
<td>40 mm x 40 mm</td>
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<tr>
<td>Number of modules</td>
<td>5</td>
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<td>Machine cover opening</td>
<td>single or total opening</td>
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<td>Machine operation</td>
<td>by touch panel or app</td>
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<td>Control, PLC</td>
<td>Siemens S7-1200</td>
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<td>Electrical connection</td>
<td>230/400 V, 3 Ph, 50 HZ, PE+N</td>
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<td>Machine design</td>
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### Injection module length 1.0 m
- Inner channel dimension WxH: 180 mm x 55 mm
- Profile infeed and monitoring: adjustable sensing roller
- Air inlet: 360°, adjustable
- Air velocity change: frequency controlled
- Profile conveyor: PTFE belt and rollers

### UHF module length 0.5 m
- UHF type: Solid State, Magnetron Technology
- UHF power: 500 W - 3kW
- Frequency band modulation: 2.4 - 2.5 GHz
- Additional UHF power display: digital on sighting flap
- UHF-Safety: Sighting flap switch

### Heating module length 1.5 m
- Form of heating energy: electric or gas
- Electrical heating power: from 20 kW
- Process air flow principle: circulating and fresh air
- Continuous channel width adjustment: electrical

### Exhaust module length 1.0 m
- Extraction type: machine end and central exhaust

### Drive and tension device length 0.5 m
- Drive brand: SEW
- Belt speed: 0.5 - 60 m/min
- PTFE belt width: from 180 mm
- Belt tension: pneumatic