

# MATERIA PCE

Poly Silicon Chunk Etching, Cleaning & Drying



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# STANGL & SINGULUS – Smart Solutions to Drive the Future

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### Poly Silicon Chunk Etching, Cleaning & Drying

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The Semiconductor industry has enjoyed more than 40 years of success since its sophisticated technology was enthusiastically embraced. Today, the commercial use of the photoelectrical effect for photovoltaic power generation is poised for similar success as it prepares for conversion to fully automated mass production.

STANGL Semiconductor Equipment AG – a German manufacturer of qualified wet process equipment – entered the booming semiconductor industry in the late 1980's. Their expertise is based on 20 years of experience in the planning, design,

assembly and implementation of wet process machines for semiconductor and solar cell manufacturing.

With STANGL continuing to experience strong growth rates, SINGULUS TECHNOLOGIES has made the decision to rapidly expand the solar segment.

#### **MATERIA PCE - Poly Silicon Chunk Etching, Cleaning & Drying**

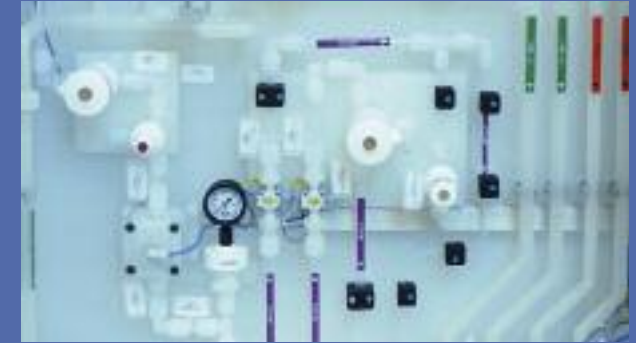
With MATERIA PCE STANGL launches its first product for raw material preparation.

The MATERIA PCE is a batch system for chemical etching, cleaning and drying of poly silicon chunks. The system is adapted to the high purity demand in poly silicon production. Simultaneously, lowest possible total cost of operation (TCO) has been a key driver in the development of this machine.

The MATERIA PCE is a fully automated system for high throughput industrial production. It relies strongly on the STANGL SILEX product line for cell fabrication which can look back on a world-wide installed base of over 80 machines.

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# Main Components



## Main Features

- \_ Proven, highly integrated design based on STANGL SILEX
- \_ For Poly silicon (electronic, solar or UMG grade)
- \_ Chunk sizes between 20 and 180 mm
- \_ Throughput: from 500 to p.a. to 2500 to p.a.
- \_ Built for non-stop utilization: 24/7, 365 days/year
- \_ High availability (uptime > 95 %)
- \_ Compliance with international safety regulations
- \_ Flexible coupling to adjacent processes by cart transportation system

## Controlled, Precise, Intelligent

- \_ Real-time Siemens S7-300 plc control of wet bench
- \_ State-of-the-art full graphic user interface
- \_ Prepared for connection to Manufacturing Execution System (MES), e.g. via OPC, XML, or SECS/GEM
- \_ Network communication support
- \_ Carrier tracking and data logging

## High Flexibility in Process Design

- \_ Acidic etching process, alkaline etching process or combined process
- \_ Highly accurate dosaging
- \_ Multi-recipe management via graphical user interface or MES
- \_ Process support available

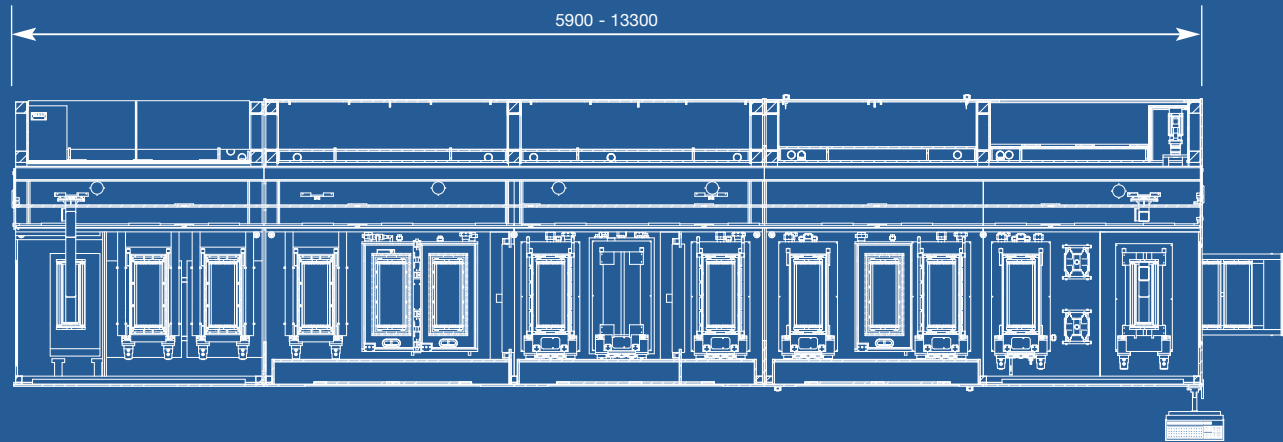
## By Using Optimized Process Baskets

- \_ Short drying time
- \_ Minimized carry-over of water and acid

## Superiously Low Cost-of-Ownership

- \_ Minimized fresh water consumption
- \_ Minimized chemical consumption
- \_ Continuous tracking of consumption data

# Technical Data MATERIA PCE



STANGL Semiconductor Equipment AG

Fraunhofer Strasse 9  
 D-82256 Fürstfeldbruck, Germany  
 Tel. +49 8141 3600-0  
 Fax +49 8141 3600-100  
 stangl@stangl.de | www.stangl.de



Main Features	MATERIA PCE
Dimension (L/W/H mm)	5900/2300/3060 - 13300/2300/3060
Capacity	500 - 2500 to p.a.
Material	Poly Si in Chunk Form Chunk sizes: 10 - 180 mm UMG, solar, and electronic grade
Batch Size	25 kg
Utilities	N <sub>2</sub> , CDA, DI water, cooling water Depending on process: HF, HNO <sub>3</sub> , HCl, KOH, NaOH, surfactant
Electrics	3P/N/PE AC 400 V, 50 or 60 Hz
Process	Acidic, alkaline, or combined
Typical Cycle Time	5 - 30 min

## Headquarters

SINGULUS TECHNOLOGIES AG  
 Hanauer Landstrasse 103  
 D - 63796 Kahl, Germany  
 Tel. +49 6188 440-0  
 Fax +49 6188 440-110  
 sales@singulus.de | www.singulus.de

## Sales Subsidiaries

### France

SINGULUS TECHNOLOGIES France S.A.R.L.  
 Tel. +33 3 893111-29  
 singulus@club-internet.fr

### Great Britain

SINGULUS TECHNOLOGIES UK Ltd.  
 Tel. +44 1793 7842-00  
 brian.walsh@singulusuk.com

### Italy

SINGULUS TECHNOLOGIES Italia s.r.l.  
 Tel. +39 0717 9303-12  
 info@singulus.it

## Latin America

SINGULUS TECHNOLOGIES  
 Latin America Ltda.  
 Tel. +55 1121 6524-10  
 rodolfo.mignone@singulus.com.br

## Singapore

SINGULUS TECHNOLOGIES Asia Pacific  
 PTE Ltd.  
 Tel. +65 674 119-12  
 singulus@singnet.com.sg

## Spain

SINGULUS TECHNOLOGIES Iberica S.L.  
 Tel. +34 936 7500-25  
 singulus@singulusib.com

## Taiwan

SINGULUS TECHNOLOGIES Asia Pacific  
 PTE Ltd. Taiwan Representatives Office  
 Tel. +886 2 274833-66  
 sales@singulus.com.tw

## United States and Canada

SINGULUS TECHNOLOGIES Inc.  
 Tel. +1 860 68380-00  
 sales@singulus.com