

## Press Release

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### **Arnold introduces new generation of grinding-machines for brick production**

Product portfolio enhanced by combined surface and chamfering grinding machine for mid-range production volumes

The Arnold Gruppe, Weilburg/Germany, an internationally recognised manufacturer of high-powered grinding machines for the processing of silicon blocks, announces a new generation of surface and chamfering grinding machines. With extensive improvements in the area of material and construction, the process reliability of this new generation of machines has been improved even further, increasing the quality whilst significantly reducing production costs. All innovative product improvements have been incorporated into the grinding machine generation as well as in the single and combined machines. Arnold supports photovoltaic manufacturers, by reducing their production costs considerably, enabling them to achieve the goal of international competitiveness via grid parity.

The new combined machine from the latest product generation, a surface and chamfering grinding machine type 72/865, will be introduced for the first time at the 25th European Photovoltaic Solar Energy Conference and Exhibition (PVSEC), from 6<sup>th</sup> to 9<sup>th</sup> September 2010 in Valencia/Spain. This combined machine is specifically designed for low and middle range brick production volumes and complements the proven single machines for mechanical surface and chamfer processing ideally.

The considerably more solid structural components of the combined machine – such as the machine bed and machine table – are annealed in a welded-steel execution and additionally sandblasted. The central part of the machine bed is filled with a mineral cast (polymer concrete) and mechanically post-treated. As a result the weight of the machine has been increased to approximately 10 tons, improving the rigidity and attenuation considerably. This guarantees optimum process reliability, shorter processing times and a more precise brick production.

The slide way for the machine table consists of a precise, ridged and hard chromium plated rail guide system. The slide way and the ball-type linear drive are protected by a nearly wear-free bellow and an additional, overlying cover plate. All fastening areas are machined; areas which are at risk of

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corrosion are made of stainless steel. Four cross slides with incorporated roller guide are mounted with an AC-servo drive beyond the working zone in the Z-axis, preventing the exposure to waste water. Four high-precision grinding spindles – including sealing air connection, reception flange and coolant passage – are each provided with a capacity of 9.1 kW for pre- and finish-grinding. The improved coolant supply with a pressure of up to 25 bar, occurs via a hollow spindle from the outside inwards. This provides optimal process cooling during the grinding process and at the same time reduces the water consumption by approximately a third.

The data-base based and via web-browser controllable software tool ARPAT®, developed by Arnold for the acquisition, analysis and storage of the process data provided by the combined machine, is optionally available. The combined machine is available worldwide from January 2011. Prices available upon request.

### **Picture caption:**

Isometrics of the combined surface and chamfering grinding machine for brick manufacturing of the Arnold Gruppe

### **Image source:**

Arnold Gruppe, Weilburg/Germany

### **Company Profile:**

Herbert Arnold GmbH & Co. KG, founded 1950 in Weilburg/Germany, is one of the world-wide leading manufacturers of burners, tools and machines as well as ready-to-use systems for customers in the area of photovoltaic, glass and quartz glass processing, fibre-optic and the automotive production.

The core competence in the area of photovoltaics is the mechanic cutting and grinding/polishing of poly-, mono and multi-crystalline silicon-ingots and blocks. Traditional values and experiences are the base of thermal and mechanical glass production which, next to a wide range of burners and tools are nowadays also incorporated into the solar thermal glass tube production.

The Arnold Gruppe consists of the following companies: Herbert Arnold GmbH & Co. KG, Helmich Automationstechnik (1998); B&C (2005) und Heathway Ltd. (2004). The foundation stone was laid by Herbert Arnold. The realisation of innovative production technologies for glass and later for quartz glass processing, turned the one-man company within a short time into an enterprise with an international reputation. The Arnold Gruppe nowadays employs over 170 employees and exports to all the key markets of the world.

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### Technical data:

#### Surface and chamfering grinding combined machine, type 72/865, Arnold Gruppe (excerpt)

#### Dimension:

##### Machine:

Length: approx. 5060 mm with electrical cabinet  
Width: max. 2350 mm  
Height: approx. 2620 mm  
Weight: approx. 9200 kg

##### Work piece:

Format: Width x Height: 125 up to 156 mm / max. 210 mm  
Length: 180 up to 500 mm  
Weight: 30 kg / max 42 kg

##### Grinding Spindle:

Grinding disc diameter: 250 mm  
Cutting speed: max. 60 m/s regulated

##### Drive performance:

Pre-grinding: 9,1 kW  
Finish grinding: 9,1 kW

##### Electrical Supply:

Connection: 230/400 V, 50 Hz, 3 Phases+N+PE  
Installed power: approx. 40 kW

##### Media:

Process water supply: R 1"; 40 l/min.; 5 up to 25 bar possible  
Compressed air: R ½"; 300 l/min; 6 bar  
Compressed air quality DIN ISO 8573-1:  
Class 3.3.1  
Cooling water cabinet: DN13; 200 l/h at 17°C flow temperature  
Ventilation connection: DN150; 300 m<sup>3</sup>/h

##### Options:

Analysis-tool ARPAT®

##### Lacquering:

Machine: Blue, RAL 5019  
Electrical cabinet: Grey, RAL 7035  
Machine trough: Grey, PU-coating

##### Availability:

Worldwide, from January 2011

##### Prices:

Upon request

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