

## The World of Dr. Fritsch: FAST/SPS & Powder Processing Technologies

FAST/SPS  
SINTERING PRESS

# DSP 615



### Benefits with Dr. Fritsch

#### Experience:

- Leading in FAST/SPS technology since 1953
- More than 1.000 FAST/SPS Sinter Presses installed worldwide
- Quality Made in Germany

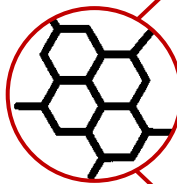
#### Application Center:

- Most machines available for testing and product development
- Powder processing equipment
- CAD Mold Design
- Consulting & Support

#### Customized Turnkey Solutions for:

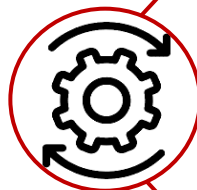
- FAST/SPS sintering
- Automation
- Powder processing

### FAST/SPS Advantages



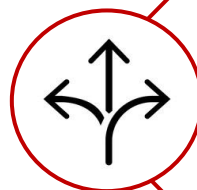
#### Improved Material Properties:

- Significant reduction of grain growth (esp. for nanoscale)
- Highest density achievable
- Homogeneous microstructure



#### Highest Productivity

- Very short sinter cycles
- Near net shape production reduces or even omits post-processing steps, which are necessary when using traditional sintering techniques



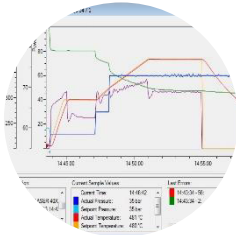
#### Highest Flexibility

- Development time for new materials can be substantially shortened
- Quick change over to other materials and dimensions



Click [here](#) or scan QR-code to watch a FAST/SPS sintering demonstration

## Product Features



### Precise control

All sintering parameters (pressure, temperature, travel distance and time) can be controlled and monitored exactly via visualization software and process management.



### Highest output

Machine is designed for highest productivity and for 24/7-operation. Automation and integration in an automated production environment possible.



### Easy operation & Low maintenance

Easy operation by a touch panel. Clear and intuitive menu navigation. Low maintenance due to high quality standards.

## Machine Data

	<u>Standard</u>	<u>Option</u>
<b>Electric Power:</b> - Total electric power: - Max. heating power: - Max. heating current: - Total electric load:	Approx. 180 kVA 170 kVA Up to 34.000 A, 4 tappings available 3 x 260 A	(other voltages and frequencies are possible on request)
<b>Vacuum:</b>	20 mbar	0,05 mbar
<b>Pressing force:</b> - normal switching:  - effective pressing area of cyl.:	50 – 650 kN  240,5 cm <sup>2</sup>	Counter pressure: 5 – 650 kN  23,8 cm <sup>2</sup> and 201,1 cm <sup>2</sup>
<b>Graphite electrodes:</b> - dimensions (WxDxH):  - max./min. opening height:  - specific resistance:	180 x 180 x 60 mm  145 / 0 mm (185 / 35 mm at 40 mm high graphite electrodes)  12 – 14 μΩm	220x220x60 mm 200x200x60 mm
<b>Temperature control</b>	Thermocouple Ni-Cr-Ni: up to 1.100 °C three-fold control	Thermocouple Pt-Rh-Pt: up to 1300 °C  Pyrometer: 300 – 3.000 °C
<b>Electronic Position sensor:</b>	accuracy 0,1 mm resolution 0,005 mm	
<b>Dimensions:</b>	according to floor plan	
<b>Weight:</b>	approx. 3.800 kg	

## Required Infrastructure

	<u>Standard</u>	<u>Option</u>
<b>Power:</b> Supply voltage: Fuses (provided by customer):	3 x 400 V, 50/60 Hz 3 x 315 A	(other voltages and frequencies are possible on request)
<b>Cooling water:</b> - consumption: - recommended water supply temperature: - pressure: - differential pressure (supply – discharge): - connection:	approx. 150 l/min (at 20 °C)  15 – 25 °C 2 – 4 bar  1 – 2 bar supply: for external thread 1½" discharge: for external thread 2"	
<b>Compressed air:</b> - consumption: - pressure: - connection:	approx. 20 l/min (depending on process) 4 – 6 bar hose nozzle for hose with inner Ø 8 – 9 mm	
<b>Inert gas:</b> - consumption: - pressure: - connection: - types:	approx. 300 – 1000 l/h (depending on process) 1 – 5 bar plug-type adapter for hose with outer Ø 6 mm nitrogen, forming gas (max. 5 % H <sub>2</sub> ), noble gas	
<b>Suction system:</b> - connection: - recommended air flow rate:	provided by customer connection piece for hose or pipe with inner Ø 100 mm approx. 800 m <sup>3</sup> /h	

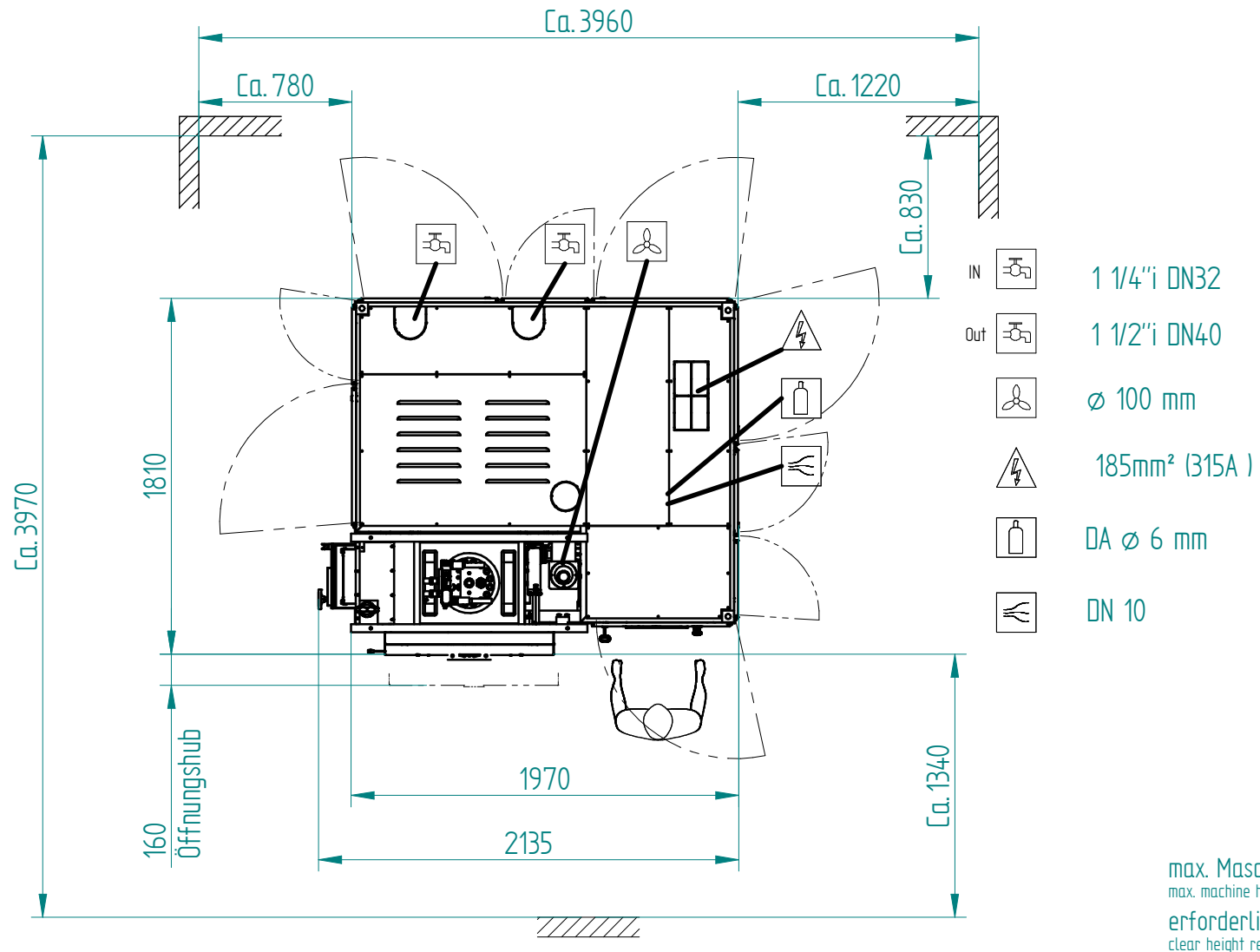
Subject to modifications of technical data and design

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Dosing – Mixing – Granulating – Cold Pressing – FAST/SPS sintering – Automation



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Symbol	Bedeutung ( meaning )	Symbol	Bedeutung ( meaning )	df1131399.dft=asm123318.asm			Aufstellplan floor plan
	Elektrik ( electrics )		Gas ( gas )	Erstellt	Datum	Name	
	Pneumatik ( pneumatics )		Wand ( wall )		20.12.19M	Covi	
	Kuehlwasser ( cooling water )		Arbeiter ( operator )	DR. FRITSCH Sondermaschinen GmbH D-70722 Fellbach			Maschinen-Typ : machine type : DSP615
	Absaugung ( suction )						Zeichnungs-Nr.: 3W