

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

FAST/SPS
SINTERING PRESS

MSP 5

With cooling unit MSC 5 (opt.)



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

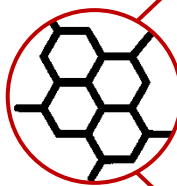
Application Center:

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

Customized Turnkey Solutions for:

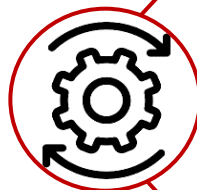
- FAST/SPS sintering
- Automation
- Powder processing

FAST/SPS Advantages



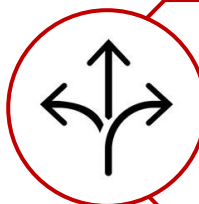
Improved Material Properties:

- 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



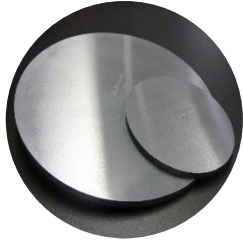
Highest Flexibility

- 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



Large workpieces & precise control

Workpieces up to Ø450 mm are possible. All sintering parameters (pressure, temperature, travel distance and time) can be controlled and monitored exactly via visualization software and process management.



Highest output & continuous production

The workpiece can optionally be shifted to the cooling unit MSC 5 under inert gas and vacuum. For materials with long cooling times, this increases the productivity significantly.

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



Compact design & easy operation

Compact design and small footprint allow flexible positioning on one work floor. Easy operation by a touch panel. Clear and intuitive menu navigation. Low maintenance due to high quality standards.

Machine Data MSP 5

	<u>Standard</u>	<u>Option</u>
Electric Power: - Total electric power: - Max. heating power: - Max. heating current: - Total electric load:	Approx. 420 kVA 410 KVA Up to 85.500 A, 4 tappings available 3x 800 A	(other voltages and frequencies are possible on request)
Vacuum:	20 mbar	
Pressing force: - MSP 5: - MSC 5: - effective pressing area of cyl.:	500 – 5000 kN Max. 50 kN 1809,56 cm ²	Other pressing forces on request
Graphite electrodes: - dimensions (WxDxH): - max./min. opening height: - specific resistance:	450 x 450 x 100 mm 500 / 350 mm 12 – 14 µΩm	
Temperature control	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
Electronic Position sensor:	accuracy 0,1 mm resolution 0,005 mm	
Dimensions:	according to floor plan	
Weight:	approx. 15000 kg (MSP5)	

Required Infrastructure MSP 5

	<u>Standard</u>	<u>Option</u>
Power: Supply voltage: Fuses (provided by customer):	3 x 400 V, 50/60 Hz 3x 800 A	(other voltages and frequencies are possible on request)
Cooling water: - consumption: - recommended water supply temperature: - pressure: - differential pressure (supply – discharge): - connection:	approx. 350 - 400 l/min (at 20 °C) 18 – 22 °C 2 – 4 bar 1 – 2 bar supply: for external thread 3" discharge: for external thread 3"	
Compressed air: - consumption: - pressure: - connection:	approx. 20 l/min (depending on process) 4 – 6 bar hose nozzle for hose with inner Ø 8 – 9 mm	
Inert gas: - 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 ₂), noble gas	
Suction system: - connection: - recommended air flow rate:	provided by customer connection piece for hose or pipe with inner Ø 100 mm approx. 1200 m ³ /h	

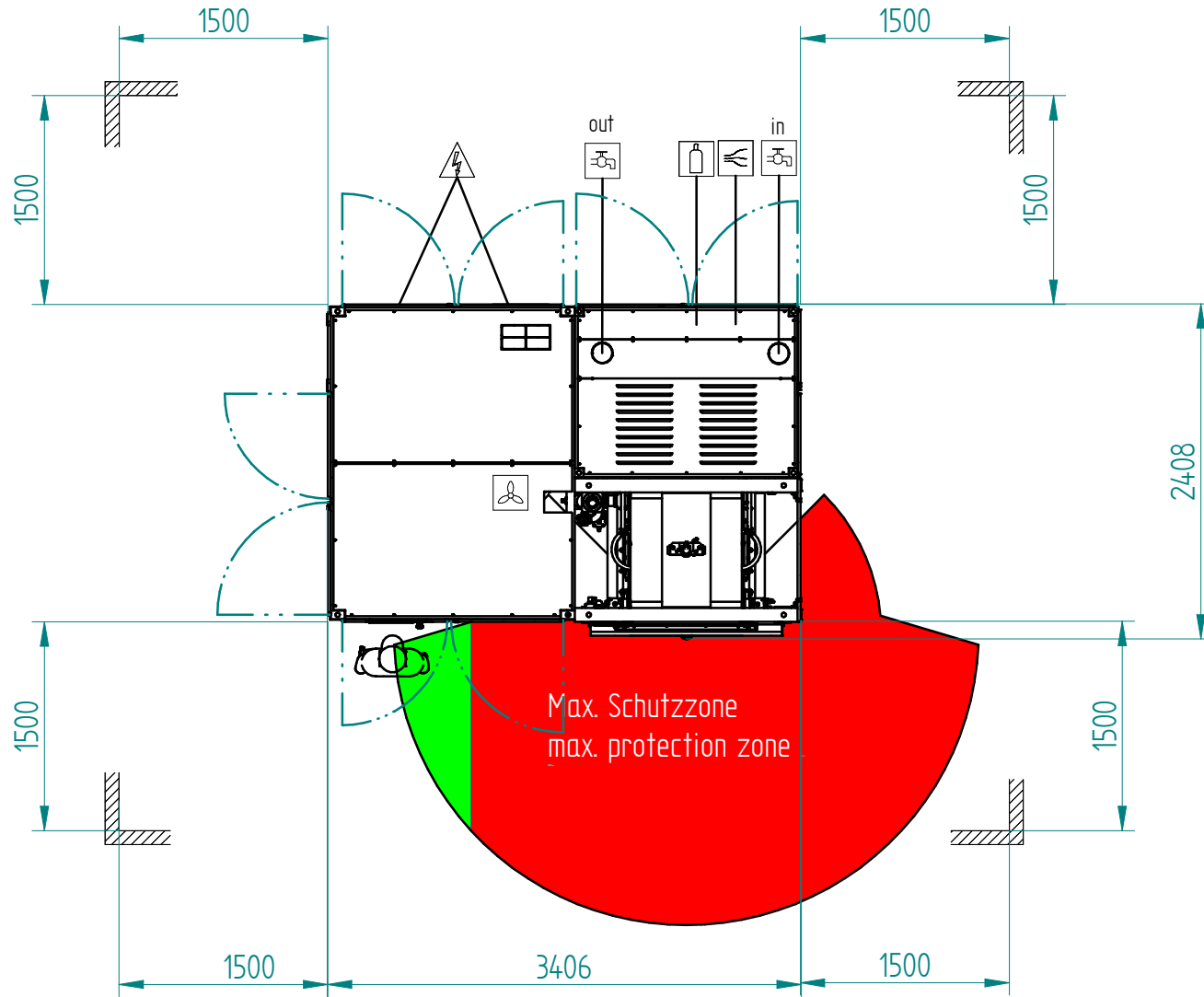
Subject to modifications of technical data and design

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



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max. Maschinenhöhe: 3280 mm
 max. machine height
 erforderliche Raumhöhe: 3500 mm
 clear height required

Symbol	Bedeutung (meaning)	Symbol	Bedeutung (meaning)	dff131545.dft=asm140710.asm			Aufstellplan floor plan
	Elektrik (electrics)		Gas (gas)	Erstellt	Datum	Name	
	Pneumatik (pneumatics)		Wand (wall)		21.01.20	M_Covi	Maschinen-Typ : machine type : Mega Sinterpresse MSP 5
	Kuehlwasser (cooling water)		Arbeiter (operator)	DR. FRITSCH Sondermaschinen GmbH D-70722 Fellbach			