

# Double spindle machining center

## DSP 450



*Perforating and milling of brake disks*

*102 holes in 50 seconds  
(1 drill spindle of each side in the machine)*

*since 1895*

**RASOMA**

Werkzeugmaschinen GmbH

*A member of the NSH-Group*

***TOWARDS THE FUTURE WITH TRADITION***

# We introduce

The double spindle machining center enables the machining of two work pieces simultaneously and is equipped with 2, optionally 4 or 6 drill spindles. With this machine, plenty of holes can be achieved at will.

The automatic loading via a storage for raw parts is coupled to a work piece alignment to bring the different hole patterns into the brake discs position-oriented. In addition, a height-positioning of the brake disks takes place for the different heights. The thus determined height adjustment degrees are deposited in the control for the machining operation.

For each type of brake disk, from the control side there is a machining program deposited for the corresponding hole pattern. A turning station connects the first clamping with the second clamping. Finished parts can be discharged by means of a roller conveyor.

## Technical data

<b>Operating capacity</b>	
Diameter of brake disk, max.	450 mm
Thicknesses of brake disc	8-45 mm
Slide travel X	1,170 mm
Slide travel Z	380 mm
<b>Main spindle</b>	
Motor spindle	Siemens torque motor
Spindle head DIN 55026	A6
Turning spindle drilling	32 mm
Speed	Max. 280 U/min
<b>Drill spindles</b>	
Number	2, optional 4 or 6
Motor spindle	Siemens synchronos
motor Spindle head	HSK 50
Speed, max.	10,000 opt. 16,000 U/min
<b>Feed drive</b>	
Rapid traverse rate XY	60m / min
Diameter of ball screw XY	40 mm
<b>Compressed air connection</b>	6 bar
<b>Electrical specifications</b>	
Operation voltage	3/PEN AC 50 Hz 400V
Control voltage	24 VDC
Power frequency	50 Hz
Nominal current	175 A
Connected load	105 kV A
Max. fuse	250 A
<b>Dimensions</b>	
Length (with chip conveyor)	~7,400 mm
Width	~5,600 mm
Height	~3,500 mm



Perforating of brake disks:  
0.25 ... 0.6 seconds per hole plus 9 seconds  
for automatic loading and unloading



Brake disks of a sports car manufacturer  
with milled grooves, produced with RASOMA  
DSP 450

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## Range of products and services of RASOMA

- Machine tools
- Special-purpose machines
- Automation solutions
- Services (consultancy, technology, customer service, maintenance etc.)



EBZ 400-4500 for end- machining large crankshaft of up to 4,500 mm in length



RASOMA double spindle-machining center DSP 450-2 e. g. for perforating braking discs



## Selected references in alphabetic order

Alfing, DE  
 Anji Precision, CN  
 Asia Nama, IR  
 BMW, DE  
 Buderus Guss, DE  
 CMV, IT  
 Continental, DE  
 Cotarko, DE  
 Daimler, DE  
 Daimler, US  
 Eifelwerk Gruppe, DE  
 EMAG, DE  
 Federal Mogul, DE  
 Ford Aquitaine, FR  
 Ford, UK  
 Ford Otosan, TR  
 Freudenberg, DE  
 General Motors, US  
 GKN HAY, DE  
 IFA Rotorion, DE  
 Kavosh, IR  
 KOKI Technik, DE  
 Kordel, DE  
 KmB Technologie, DE  
 Küpper, DE  
 KTR Kupplungstechnik, DE  
 Lakshmi, IN  
 Linamar, DE  
 Mahle, DE  
 MAN Ferrostahl, DE  
 Mannesmannrohr, DE  
 MTS Traktorenwerk Minsk, BY  
 NZWL Neue Zahnradwerk Leipzig, DE  
 NILES Simmons, DE  
 Opel, DE  
 Orsk Machine Building, RU  
 Reintjes, DE  
 SEW, FR  
 SHW, DE  
 UKM, DE  
 Visteon, US  
 Volkswagen, DE  
 VTF Group, CH  
 VTZ Volszhky, RU

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since 1919

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Innovation from tradition for over 90 years.  
 INNOVATION FROM TRADITION FOR OVER 90 YEARS

CNC manufacturing centers FZS



Our newly developed modular constructed CNC manufacturing center FZS 3200 is especially qualified for processing oil drilling and weight reducing holes of crankshafts or similar undulated parts of up to 1,150 mm in length

## Technical data

	FZS 2400	FZS 3200
Traverse range X, mm	1,520	2,320
Travel path Z, mm	600	600
Travel path Y, mm	500	500
Motor power of the machining spindle, kW, s1	16	16
Torgue, Nm	40	40
Rated speed, U/min	4,500	4,500
Rotational speed range, U/min	0...6,000	0...6,000
Tool holder	HSK 63	HSK 63
Width, without automation, without chip conveyor, mm	3,200	4,000
Depth, mm	2,950	2,950
Hight, mm	3,270	3,270
Weight of the basic machine, kg	14,000...16,000	15,500...17,500



Minimal quantity lubrication causes optimal cutting values during deep hole drilling and is decisive for a high productivity. In addition, it fulfills cost saving in comparison to the classical application of high pressure cooling lubricant systems



The base frame of the machine with longitudinal slide on three linear guides, cross slide for suspended, pivoting tool spindle. Below the Y-slide with bolting surface for the clamping device



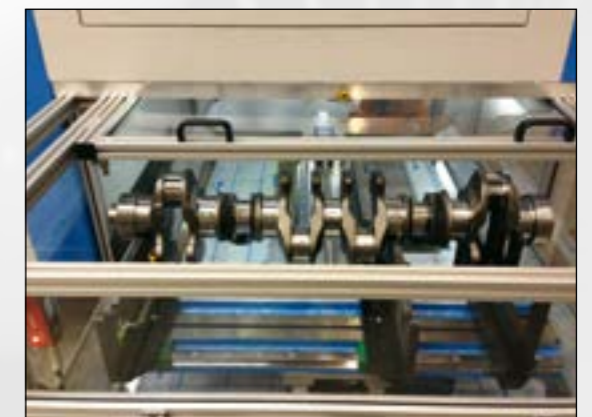
Tool magazine for 12 tools



Cooling device and chip conveyor



Infinitely tilting tool spindle and clamping device with turning module and C-axis, movable tailstock and programmable steady rest in support of processing prolonged crankshafts



Slides of raw and finish parts for feeding and removal of the work pieces



*In addition to our vertical turning centers of the series DS and DZS for disc-type parts which are produced for many years, now is a powerful turning center for shaft-type parts available: our newly developed DWS 250-4/600*

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Werkzeugmaschinen GmbH

since 1919

WITH TRADITION IN THE FUTURE

**RASOMA Vertical-shaft turning center DWS 250-4**



RASOMA Vertical-shaft turning center DWS 250-4 with automated supply and removal of work piece



Generous and easily accessible work area

## Concept

- Two independently controlled compound slides allow the simultaneous processing of shaft-type work pieces up to ca. 600 mm in length with two tools (depending on clamping device and clamping principle).
- The firmly mounted headstock and moveable tailstock with fixed center ensure high stability during the processing.
- The programmable tailstock force allows flexible sensitivity, so that face driver-applications as well as thin shafts can be machined perfectly.
- Process automation can be realized in many ways, for example with our very economic, proven machine integrated and highly flexible RASOMA articulating gantry loader.
- The working area is characterized by excellent accessibility to the tool turrets, the motor spindle and the tailstock, as well as by prolem-free chip flow along the 90°-bed edge into the chip conveyor.
- To achieve better damping characteristics, multiple ribbed monoblock-machine base is filled with either more or less polymer concrete, depending on the machining application.

Please visit our website. You will find the video for 4-axis-shafts machining on the machine DWS 250-4.

## Technical data

		DWS 250-4/600
<b>Machining area</b>		
Work piece Ø max.	mm	200
Work piece length max.	mm	approx. 600
Travel path X1/X2-axis (horizontal)	mm	400
Travel path Z1/Z2-axis (vertical)	mm	800
<b>Feed drives</b>		
Ball screw Ø, X1/X2	mm	50/50
Ball screw Ø, Z1/Z2	mm	50/50
Rapid traverse X-axis	m/min	60
Rapid traverse Z-axis	m/min	60
<b>Headstock</b>		
Principle		fixed
<b>Motor spindle in headstock</b>		
Nominal power (100%)	kW	28.3
Rated load torque (100%)	Nm	300
Nominal speed	U/min	900
Speed, max.	U/min	3,500, optional 5,000
Spindle head with short taper	size	A6
Diameter in front bearing	mm	120
<b>Reitstock</b>		
Principle		moveable
Quill		fixed
Pressing force		programmable
<b>Control</b>		
Manufacturer		SIEMENS
Type		Si 840 D solution line
<b>Tool holder</b>		
Principle		2 x star turret, SW400
Tool holder		2 x VDI 40, optional Capto C4 and KM40
Places		2 x 12
Driven tools, optional		2 x 12
<b>Weight</b>		
approx.	kg	21,000 (with gantry)



Machine-integrated RASOMA-articulating gantry loader and measuring station



Principle of loading and unloading of shaft-type work pieces with machine-integrated RASOMA-articulated gantry loader

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*RASOMA manufacturing center FZS 3200 for end processing and oil drilling processing of crankshaft etc.*



*RASOMA end machining center EBZ 400-4500 for shaft-type work pieces up to 4,500 mm in length*



*RASOMA vertical-turning-grinding center DZS 250-2*

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 Ford Aquitaine, FR  
 Ford, UK  
 Ford Otosan, TR  
 Freudenberg, DE  
 General Motors, US  
 GKN, DE  
 HAY, DE  
 Helwan Diesel, EG  
 IFA Rotorion, DE  
 Kavosh, IR  
 KOKI Technik, DE  
 Kordel, DE  
 KmB Technologie, DE  
 Küpper, DE  
 KTR Kupplungstechnik, DE  
 Lakshmi, IN  
 Linamar, DE  
 Mahle, DE  
 MAN Ferrostahl, DE  
 Mannesmannrohr, DE  
 MTS Traktorenwerk Minsk, BY  
 NZWL Neue Zahnradwerk Leipzig, DE  
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 Reintjes, DE  
 SEW, FR  
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 Volkswagen, DE  
 VTF Group, CH  
 VTZ Volszhky, RU  
 Wildauer Schmiedewerk, DE

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