

Special

purpose Machines

Further implemented technology solutions



Range of products and services

- Werkzeugmaschinen
- Sondermaschinen
- Automatisierungslösungen
- Komponentenfertigung
- Dienstleistungen (Beratung, Technologie, Service, Wartung u.a.)



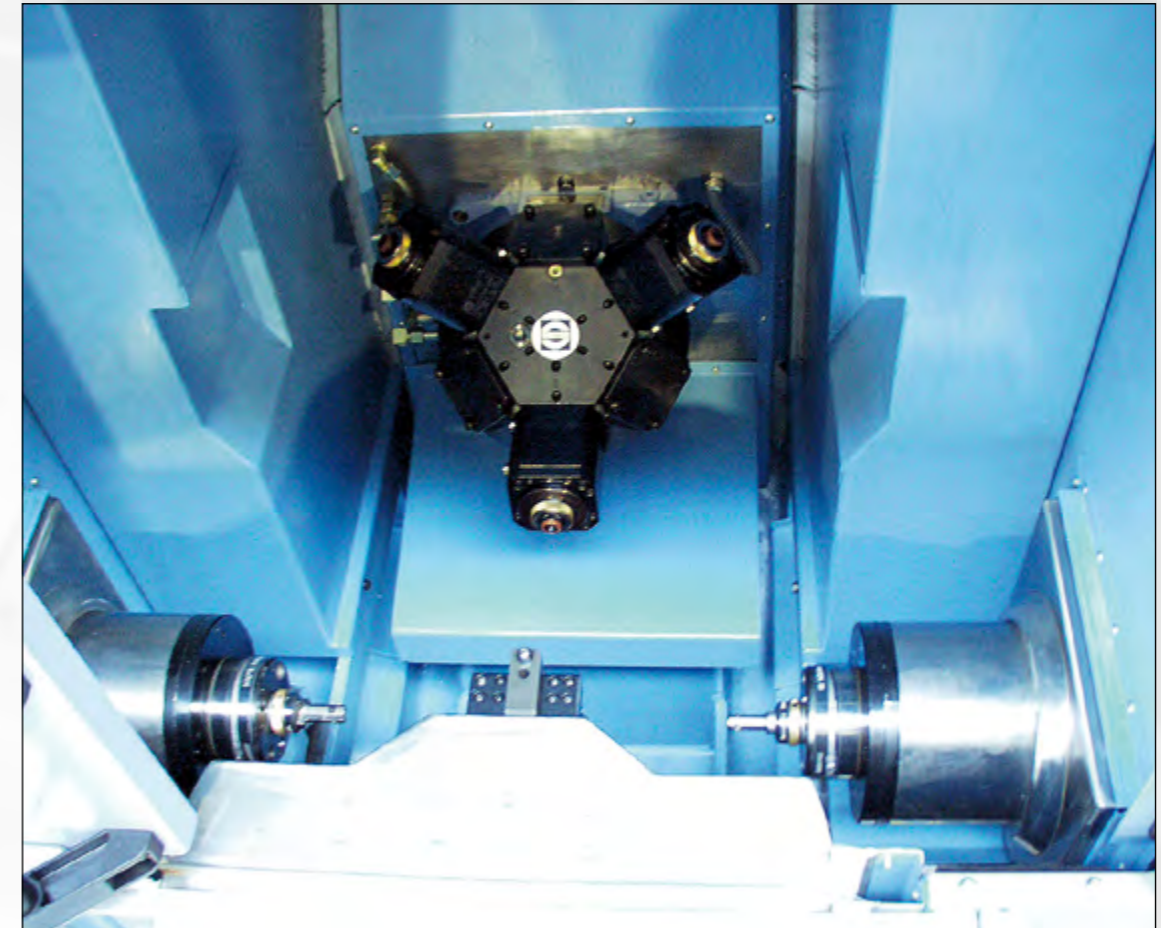
Zweispindliges RASOMA Senkrecht-Drehzentrum DZS 250-2



RASOMA Endenbearbeitungszentrum EBZ 250x1000

Selected references in alphabetic order

- | | |
|------------------------|------------------------------------|
| Anji Precision, CN | Kordel, DE |
| Bitzer, DE | Krause & Mauser Maschinenbau, DE |
| Blickle, DE | KRS-Seigert, DE |
| BMW, DE | KTR Tacke Kupplungstechnik, DE |
| Buderus Guss, DE | Küpper, DE |
| Caterpillar, US | Lakshmi, IN |
| CMV, IT | Linamar, DE |
| Continental, DE | Mahle, DE |
| Cotarko, DE | MAN Ferrostahl, DE |
| Daimler, DE | Mannesmannrohr, DE |
| Daimler, US | MTS Traktorenwerk Minsk, BY |
| Eifelwerk Gruppe, DE | MUBEA, DE |
| EMAG, DE | Nabtesco ITG, DE |
| Federal Mogul, DE | NILES-SIMMONS Industrieanlagen, DE |
| FlammAEROTEC, DE | NZWL Neue Zahnradwerk Leipzig, DE |
| Ford Aquitaine, FR | Opel, DE |
| Ford, UK | Orsk Machine Building, RU |
| Ford Otosan, TR | Profilator, DE |
| Freudenberg, DE | Rege, DE |
| General Motors, U | Reintjes, DE |
| GEWES, DE | Schmidt Automotive GmbH, DE |
| GKN, DE | SEW, FR |
| GRIS Umformtechnik, DE | SHW, DE |
| HAY, DE | UKM, DE |
| HEGENSCHEIDT-MFD, DE | Visteon, US |
| Helwan Diesel, EG | Volkswagen, DE |
| IFA Rotorion, DE | VTF Group, CH |
| John Deere, FR | VTZ Volszhky, RU |
| KmB Technologie, DE | Wildauer Schmiedewerke, DE |
| KOKI Technik, DE | Zimmermann, DE |



since 1895

RASOMA

Werkzeugmaschinen GmbH

A member of the NSH-Group

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TOWARDS THE FUTURE WITH TRADITION

Implemented solutions Special-Purpose Machines

Automation technology



System for complete manufacturing of sintered plastic sealing rings for steering gear

- incl. forcing out of sintered mandrels
- incl. strain test
- incl. sorting parts into OK and NOK parts and PLC parts

Cycle time: 34 sealing rings in 60 seconds



Special-purpose machine for machining of 2 balancing bores Ø20 on motorcycle crankshafts and for spot-facing without any extension of cycle time

Cycle time: 49 seconds



Double-spindle special-purpose machine DSP 450-2

Machining example - brake disks:

Position-oriented perforation of ventilated brake disks offering the following advantages:

- Automatic identification of different brake disks with different hole patterns
- Automatic turning of brake disk
- Identification of ventilation ribs
- No multi-spindle boring tool-holders required
- Tool wear and breakage monitoring

Cycle time: 49 seconds for 110 holes

Machining example - cone bearing rings:

- Face turning and 12x drilling/threading M18x1.5 in large cone bearing rings
- Automatic identification and machining of pitch circles Ø100 to Ø170
- Tool wear and tool breakage monitoring

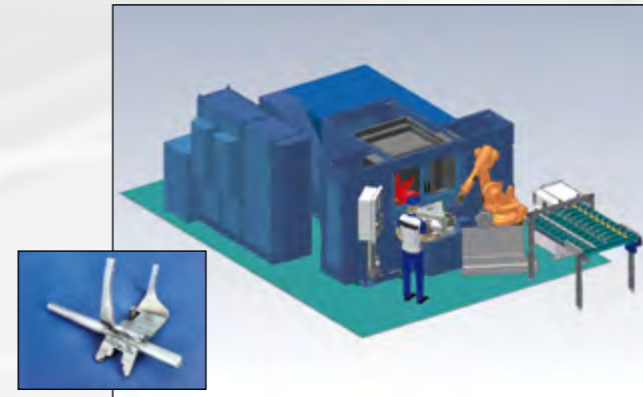
Cycle time: 61 seconds



Special-purpose machine for machining inner chamfer of piston rings

- automatic feeding, clamping, machining, removal
- high accuracy requirements

Cycle time: 6 seconds



Special-purpose machine for precise three-side machining of shifter forks for car transmissions

- Production of sets (=3 pieces)
- Extremely low permissible coaxiality and centre deviation

Cycle time: 24 seconds for one set



Special-purpose machine for precise three-side machining of gearchange sleeves for car transmissions

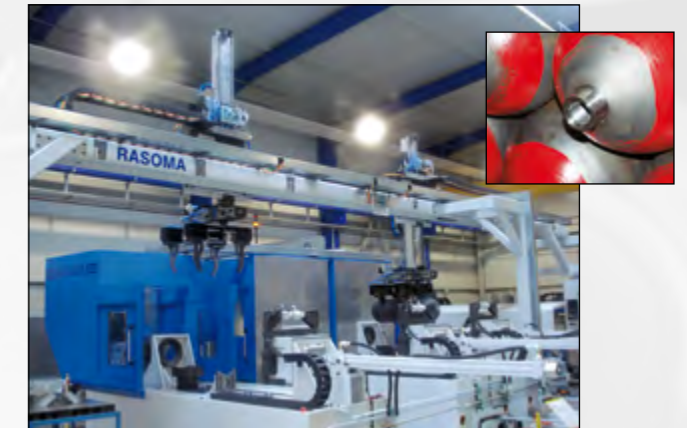
- 2 motor spindles for Ø21N6, chamfer, plane side
- 6-fold crown turret for Ø15.9, backward deburring, Ø16S6 and chamfering

Cycle time: 22 seconds



Special-purpose machine for machining heads of up to 18m long mandrel bars

- Automatic feeding and removal of workpieces
- Robust design suited for use in rolling mills



Special-purpose machine for machining of CNG cylinder necks

- Cylinder dimensions up to Ø400 and 2,500mm in length
- Cutting the length, core-hole boring, plain milling, outside and inside Ø, thread milling

Cycle time: <60 seconds

A machine is normally comprised of

- Three machining stations
- Gantry loader with two vertical units
- Turning station with integrated vacuum cleaning system
- Hydraulic clamping station
- Chip conveyor
- CNC control Siemens 840D



Special purpose machine for machining of driving rings and joint shafts

Machining example driving ring:

cycle time for drilling, fine drilling and turning of security ring grooves:

85 seconds