



S 800 - S 1200 - S 1600 - S 2000

Hobbing Machines



S 800/1200/1600/2000

Universal design for a wide range of applications

One modular machine concept for the heavy-duty machining of

- spur and helical gears
- crowned and tapered gears
- worm gears
- cluster gears
- special profiles
(e.g. compressor rotors)
- non-circular gears
- herringbone gears
(double helical gears)
- internal gears

Processes

- All hobbing techniques and form milling by using the single indexing method.
- Dry or wet machining with advanced HSS or carbide tools.
- Skiving/finish hobbing of hardened gears.
- Milling of internal gears
(option for S 1200-2000).
- Shaping of external and internal gears.
- Chamfering and deburring using CNC spindle (optional).
- Integrated gear inspection (optional).



S 1600 machine bed



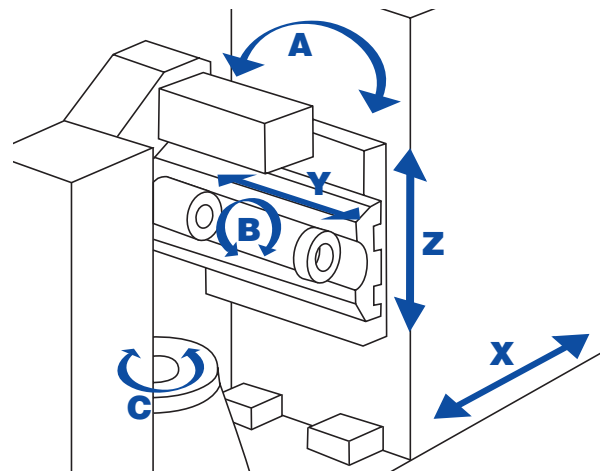
S 1200

Characteristic features

- The modular machine concept has been consistently applied even to the large machines of the S series, guaranteeing an outstanding cost-benefit ratio and low maintenance costs.
- Grey cast-iron machine bed for maximum static and dynamic rigidity with integrated fluid circulation for thermal stability.
- Motorized hob head in compact design with tangential slide and backlash-free gear train.
- Work table drive with hydraulically-compensated double worm gear drive, high-resolution AC digital drive as the position-controlled follow-up axis (electronic gearbox).
- Linear slides with backlash-free preloaded ball screws, AC servo-drives, cast-iron guideways, resin-coated for optimum vibration absorption. PLC-controlled pulse lubrication.
- Interpolated tool withdrawal in case of power failures and emergencies.
- Automatic lubrication of all moving parts.
- Machine fully enclosed, automatically-locking doors (integral splash guard).
- Magnetic chip conveyor.



Worm gears hobbled on the S 1600



Kinematics:

- A: Hob head swivel
- C: Work table rotation
- X: Radial movement
- Y: Tangential movement/shifting
- Z: Axial movement
- B: Hob spindle rotation

■ Sinumerik 840 D with 6-axis-continuous-path control with electronic gearbox function, integrated PLC for all machine functions and data exchange interface.

■ Samputensili Dialog Software for flexible selection of various machining cycles and user-friendly input of all geometric and technical data, as well as integrated fault diagnostics.

■ Mobile operator panel with electronic handwheel.

■ Skipping of defective tool sections.

Options

- Counter column with steady rest or swing-away tailstock (with center).
- Extension of column and counter column for increased axial travel.
- Hydraulic clamping of column and axial slide.
- Hydraulic workpiece clamping with safety system and digital monitoring of clamping stroke.
- Form milling head for internal gears (S 1200/1600/2000).
- Shaping head for internal and external gears.
- CNC-controlled chamfering and deburring unit.
- Machine-integrated gear inspection.
- Remote diagnostics system for software upgrades and troubleshooting.
- Various chip disposal systems and filters according to machine application.
- Automatic workpiece centering.
- Monitoring of tool condition.
- Coolant flow monitor.

S 800/1200/1600/2000



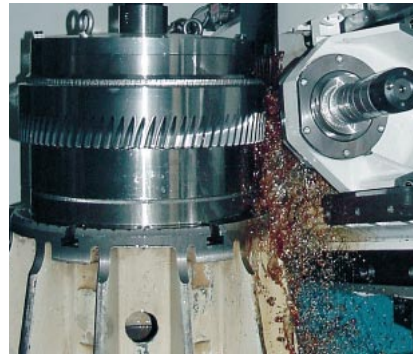
Rotor hobbing on the S 800



S 1200 hobbing of large pinions



Hob head for internal gears (optional)



S 800 hobbing a large gear

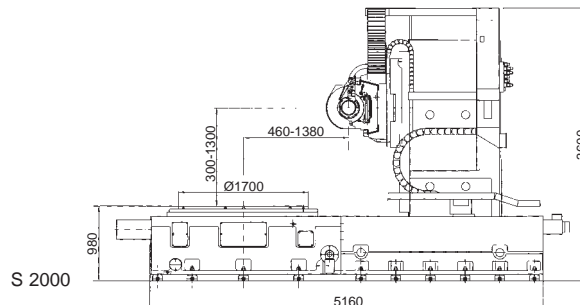
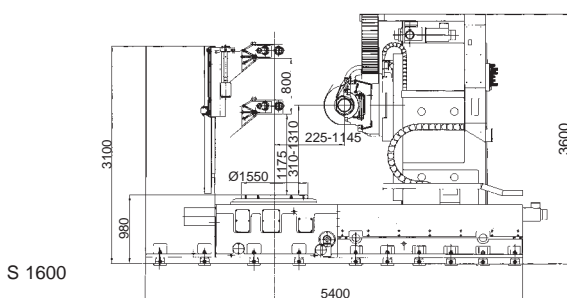
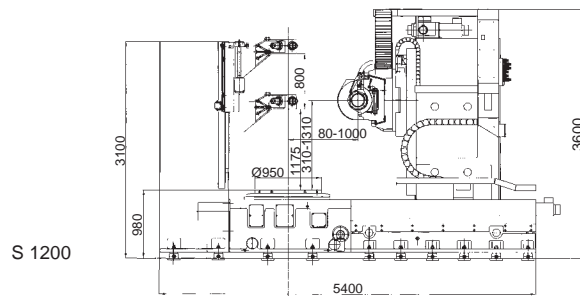
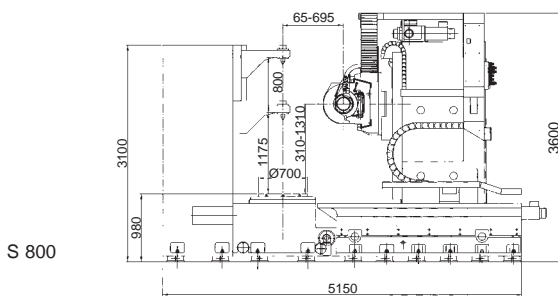


Swing-away tailstock for the S 1200 and S 1600

Technical data

	S 800	S 1200	S 1600	S 2000	
Workpiece diameter	800	1,250	1,600	2,200	mm
Max. module					
- for hobbing	18	18	18	18	mm
- for milling by single indexing method	24	24	24	24	mm
Work table diameter/bore diameter	700 / 260	950 / 260	1,600 / 300	1,700 / 420	mm
Radial travel	65 - 695	80 - 1,000	225 - 1,145	460 - 1,380	mm
Axial travel/optional	310 - 1,310 / 1,710	310 - 1,310 / 1,710	310 - 1,310 / 1,710	310 - 1,310 / 1,710	mm
Tangential travel	350	350	350	350	mm
Hob head swivel angle	+/- 50	+/- 50	+/- 50	+/- 50	degrees
Max. tool diameter/length	450 / 500	450 / 500	450 / 500	450 / 500	mm
Hob arbor taper	SK 60	SK 60	SK 60	SK 60	-
Max hob spindle speed/optional	250 / 320	250 / 320	250 / 320	250 / 320	rpm
Max work table speed/optional	16 / 32	15 / 30	8	6	rpm
Radial and axial feed	3,000	3,000	3,000	3,000	mm/min
Tangential feed	1,500	1,500	1,500	1,500	mm/min
Hob head drive output	46	46	46	46	kW
Total connected load	100	100	100	100	kVA
Machine dimensions, L x W x H	7.30 x 4.80 x 4.00	7.30 x 5.10 x 4.00	7.30 x 5.10 x 4.00	7.40 x 6.00 x 4.00	m
Machine net weight, approx.	26,000	30,000	32,000	32,000	kg

Technical data is subject to change



System technology from one source



Cylindrical gear hobbing
Bevel gear cutting
Profile grinding
Continuous generating grinding
Shave grinding
Shaving cutter grinding
Chamfering and deburring

HSS and carbide hobs
HSS and carbide shaper cutters
Shaving cutters
Grinding wheels and grinding worms
Diamond dressing tools
Master gears
Chamfering and deburring tools
Bevel gear cutting tools

Regrinding of hobs, shaper cutters
and shaving cutters

Coating of cutting tools, dies, stamps,
mechanical parts, punching dies/tools

Replating of grinding wheels and
grinding worms

Grinding of compressor rotors, rotors
for hydraulic pumps, gears of special
design, worms and cams



The driving force
in gear technology

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