

S 150 - S 200 - S 300 - S 400

Hobbing Machines

S 150 - S 200 - S 300 - S 400

Universal application

The S 150 - S 400 special series of hobbing machines has been specifically developed for dry hobbing and guarantees productive and flexible small batch or mass production of:

- spur/helical gears
- crowned/tapered gears
- worm wheels
- sprocket wheels/timing-belt discs
- cluster gears
- special profiles

Processes

- All hobbing techniques and form milling with the single indexing method.
- Dry or wet machining using the latest HSS technology or carbide tools.
- Skiving/finish hobbing of hardened gears.



Chemnitz - assembly line

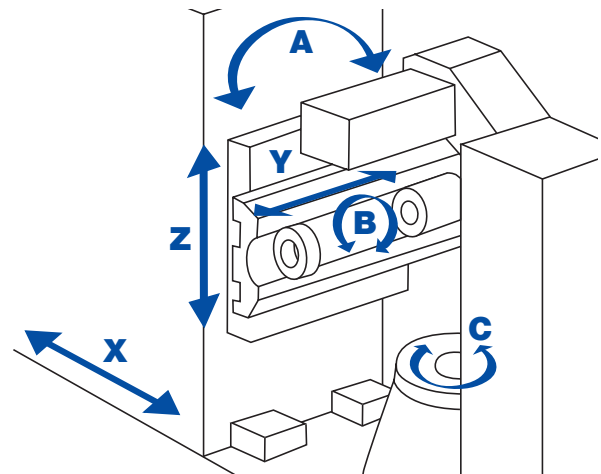


Characteristic features

- The modular concept guarantees an outstanding cost/benefit ratio and low maintenance costs.
- Grey cast-iron machine bed provides maximum static and dynamic rigidity with integrated fluid circulating system for thermal stability.
- Backlash-free hob head drive with infinitely variable hob spindle speed control and dynamic motor control with digital CNC-interfaces.
- Work table with hardened surface, high-resolution AC digital drive to control the dynamics of the axes. (electronic gearbox).
- Backlash-free, anti-friction bearings with life-long lubrication.
- Work table directly driven by liquid-cooled motor type:
 - A-synchronous for S 150 and S 200
 - Synchronous (Torque motor for S 300 and S 400)
- Linear slides with backlash-free pre-loaded ball screws, AC servo-drives, cast-iron resin-coated guideways for optimum vibration damping, PLC-controlled pulse lubrication. The column guide is hydraulically relieved.
- Steep, smooth surfaces for optimum chip disposal during dry machining.
- Counter column with tailstock slide and adjustable clamping force.



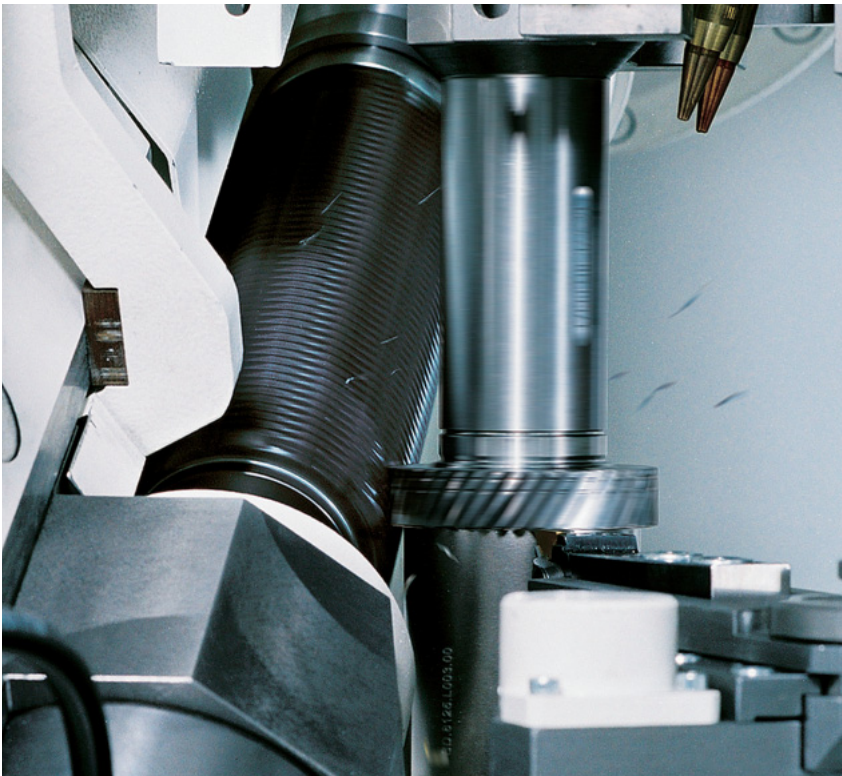
Large Pinion hobbled on S 300



Options

- 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 6-axes-continuous path control with electronic gearbox and integrated PLC for all machine functions and data exchange interface.
- Samputensili Dialogue Software for flexible selection of various machining cycles and practice-based input of all geometrical and technical data, as well as integrated fault diagnostics.
- Skipping of defective tool sections.
- Interpolated tool withdrawal in case of power failures and emergency situations.
- Automatic lubrication of all moving parts.
- Magnetic chip conveyor.
- Swing-away tailstock for (S 200/400).
- Hob head drives in various designs with different motor versions.
- Hydraulically-operated quick change systems for hob arbours and work-holding equipment.
- Hydraulic workpiece clamping with safety system and digital monitoring of the clamping stroke.
- Integrated hydraulically actuated pre-deburring unit with appropriate tools.
- Remote diagnostics system for software upgrades and troubleshooting.
- Various chip disposal systems according to machine application.
- Automation systems for workpiece change and storage such as ring loaders, gantry loaders, robots, pallet magazines with lifting stations, stack handling systems, conveyors or interfaces to external automation systems.
- Electronic monitoring of blanks and machined parts.
- Dry or wet hobbing equipment or combination of both methods.
- Automatic workpiece centering.
- Tool monitoring system.

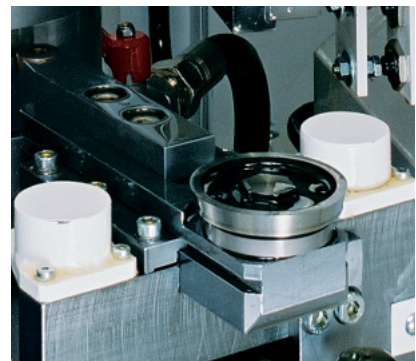
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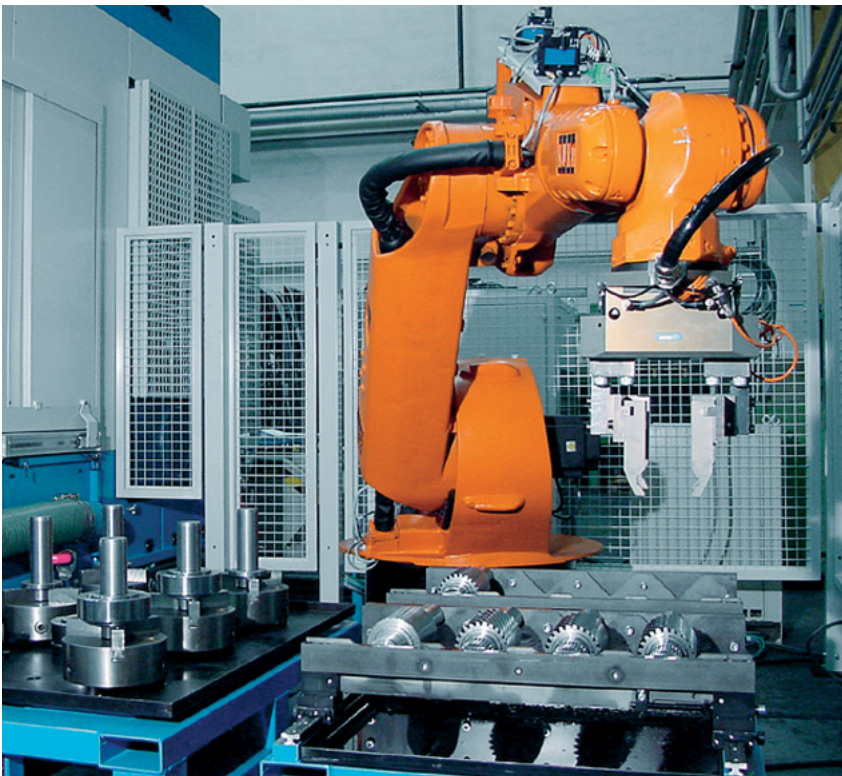
Dry hobbing on S 150



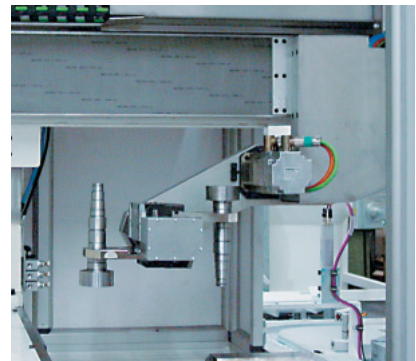
Hob spindle with tools for different gears



Integrated pre-deburring unit



Robotic loader for large shafts hobbled on the S 400



Automation solution with portal loader

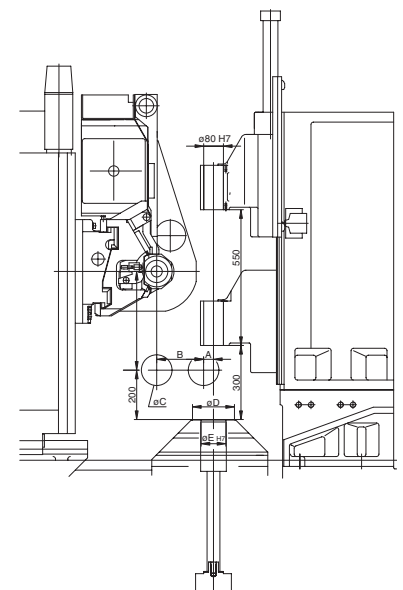
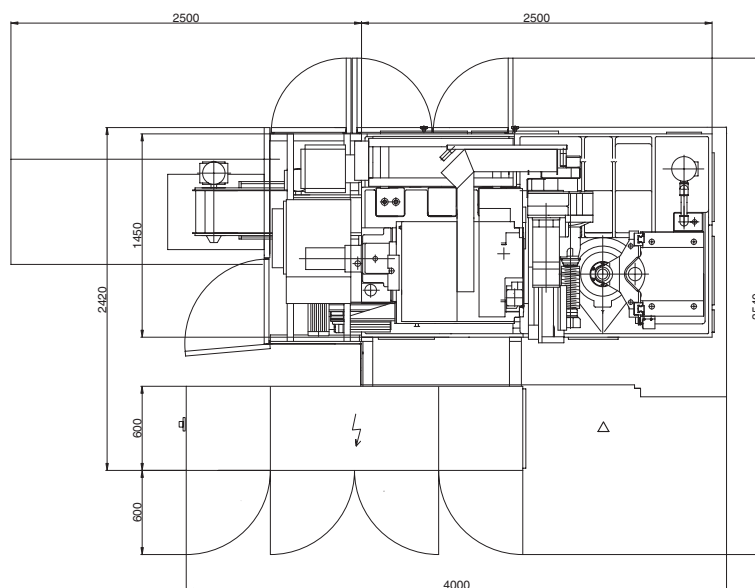


Hobbing of a synchro-gear

Technical data

	S 150	S 200	S 300	S 400	
Workpiece diameter, max.	150	200	300	400	mm
Normal module	4	4	6	6	mm
Work table diameter/bore diameter (D/E)	170 / 100	170 / 100	250 / 100	330 / 150	mm
Radial travel (A/B)	155	180	220 (190*)	255	mm
Axial travel standard/optional (G)	400	400 / 600	400 / 600	400 / 600	mm
Tangential travel	240	240	240	240	mm
Tool diameter/length, max. (C)	130 / 325	130 / 325	175 (130**) / 300	175 / 300	mm
Hob arbour clamping fixture taper	plier 32	plier 32	HSK-A 80	HSK-A 80	-
Swivel angle (option)	+/- 45	+/- 45	+/- 45 (-120)	+/- 45 (-120)	degrees
Hob spindle speed, max./optional	1.800 / 3.000	1.800 / 3.000	800 / 1.200 / 1.800*	800 / 1.200	min ⁻¹
Work table speed, max.	600	600	400	400	min ⁻¹
Radial and axial feed, max.	5.000	5.000	5.000	5.000	mm/min
Tangential feed, max.	5.000	5.000	5.000	5.000	mm/min
Hob head drive output	22	22	14 / 22*	14	kW
Total connected load of machine	55	55	55	55	kVA
Machine dimensions, L x W x H	4,00 x 2,42 x 2,75	4,00 x 2,42 x 2,75	4,00 x 2,42 x 2,75	4,00 x 2,42 x 2,75	m
Machine weight, approx.	9.000 - 11.000	9.500 - 11.500	10.000 - 13.000	10.500 - 13.500	kg

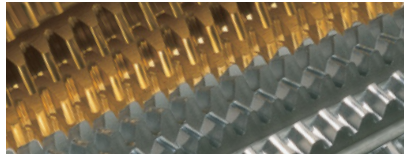
* 1,800 min⁻¹ with drive output 22 kW, max. hob diameter 130 mm



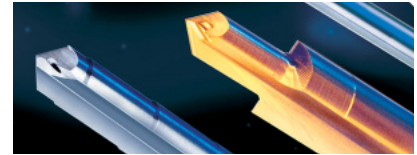
System technology from one source



Cylindrical gear hobbing
 Bevel gear cutting
 Shaping
 Profile grinding
 Continuous generating grinding
 Honing/shave grinding
 Shaving cutter grinding
 Hob grinding
 Universal tool grinding
 Carbide tool grinding
 Chamfering and deburring



HSS and carbide hobs
 Shaper cutters
 Broaches
 Milling cutters
 Rack and saw cutters
 Shaving cutters
 Profile grinding wheels
 Master gears
 Chamfering and deburring tools



Single and double flute gundrills
 Solid carbide gundrills
 Two-fluted milled style deep hole drills
 Solid carbide drills and reamers
 Pressure coolant drills and reamers
 "PCD" drills and reamers
 Integrated holder "PCD" tooling

Regrinding of gear cutting tools
 Coating of gear cutting tools
 Decorative coatings
 Replating of grinding wheels
 Grinding of compressor rotors, gears of special design, worms and cams



Star SU LLC
 5200 Prairie Stone Parkway, Suite 100
 Hoffman Estates, IL 60192
 USA
 Tel.: 847 649 1450
 Fax: 847 649 0112
 sales@star-su.com

Star SU LLC
 Sales Office Michigan
 23461 Industrial Park Drive
 Farmington Hills, MI 48335-2855
 USA
 Tel.: 248 474 8200
 Fax: 248 474 9518
 sales@star-su.com



Starcutter Inc.
 Elk Rapids Engineering
 Machine Tool Technology
 210 Industrial Park Drive/P.O. Box 728
 Elk Rapids, MI 49629-0728
 USA
 Tel.: 231 264 5661
 Fax.: 231 264 5663
 sales@starcutter.com



SU America Inc.
 5200 Prairie Stone Parkway, Suite 100
 Hoffman Estates, IL 60192
 USA
 Tel.: 847 649 1450
 Fax: 847 649 0112
 sales@suafrica.com



Star SU LLC, Hoffman Estates/Illinois



Starcutter Inc., Farmington Hills/Michigan

