

H 250-800 / CD-series
hobbing, chamfering and deburring machines

H 250-800 / CD-series



H 250 hobbing machine
Ring or portal loader



H 300 hobbing machine
Ring or portal loader



H 400 hobbing machine
Ring or portal loader



H 250 R hobbing machine
Power cutting with high
torque drive and ext.



H 250 CD hobbing machine
with integrated chamfering/
deburring with one tool
station



H 250 CDM hobbing
machine with integrated
chamfering/deburring with
two tool stations



H 600 hobbing machine
with integrated chamfering/
deburring with one tool
station



H 800 hobbing machine
with integrated chamfering/
deburring
with two tool stations



H 600 R hobbing machine
Power cutting with high
torque drive, and extended
countercolumn



CD 350 H chamfering/
deburring
machine with shuttle loader



CDA 250 H chamfering/
deburring machine with
gantry swivel loader



CDX 250 H chamfering/
deburring machine with
multiple heads



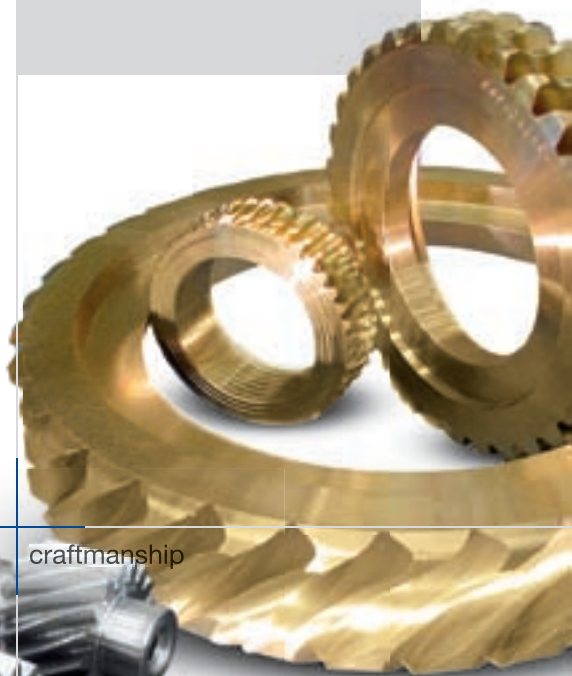
The new H series of hobbing machines for gears, shafts, worms and rotors

The H series is designed for demanding automotive applications, like medium-sized ring gears and shafts. It is also suited for producers of any kind of industrial drive. The reinforced R versions are real workhorses, cutting gears with high stock removal rates and capable of hobbing difficult materials. Wherever gears up to 800 mm in diameter are required, we can offer you a solution that suits your specific needs.

With completely integrated chamfering and deburring stations and masked time processing, the H 250 CD and H 250 CDM are highly productive manufacturing assets. Naturally both processes are handled by the machine's CNC and can be used separately or in a combined procedure.

The H series is accompanied by a range of stand-alone chamfering and deburring machines that can be fed by hand loading, automated with portals and swivel loaders or fully integrated in your production process.

Our aim is simple: to bring an economic surplus to your daily manufacturing life



craftmanship



Basics first. With innovative concepts and attention to detail

Cast from an advanced composite material and made to tighter tolerances, the common modular platform has the rigidity and thermal stability of conventional cast iron – two fundamental requirements in demanding, gear hobbing processes. The machine structure is also coolant-flooded to enhance rigidity and keep temperature deviations to a minimum.

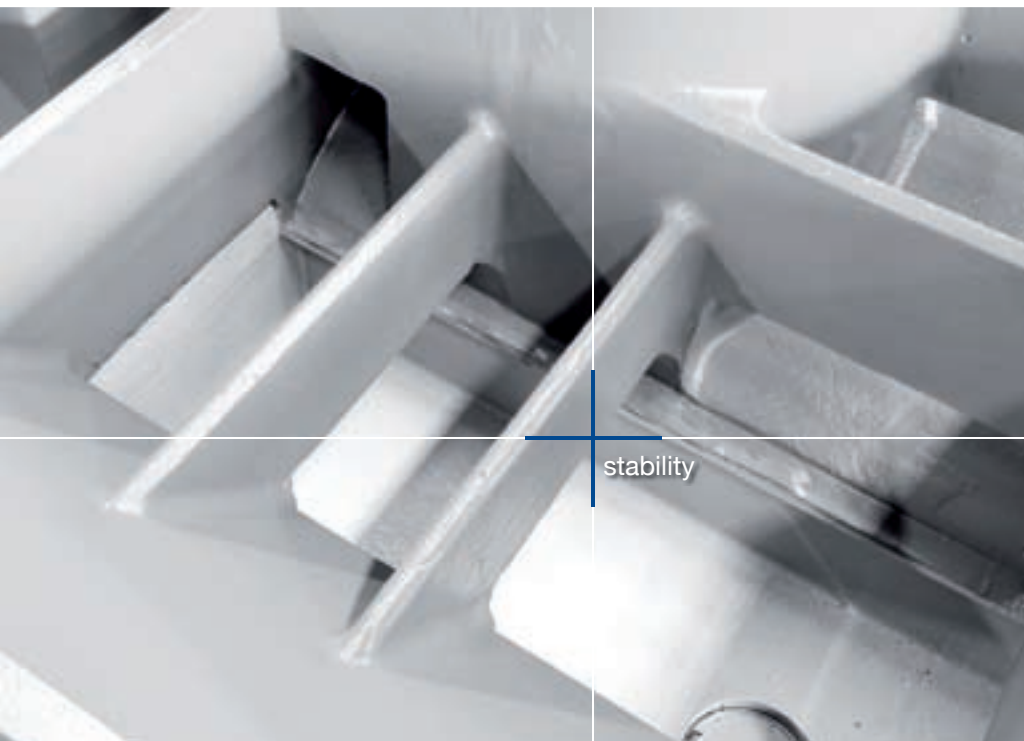
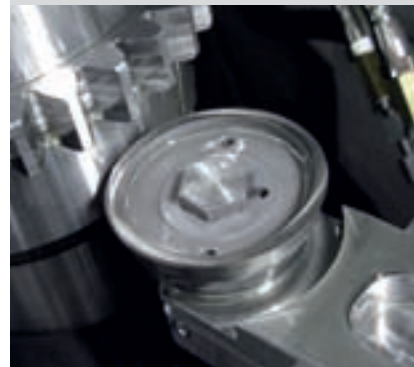
The inclined planes of the work area prevent the build up of chip nests. Chips are evacuated immediately via an integrated conveyor and do not come into contact with the machine structure. Consequently, the machine remains thermally stable even under the harshest work conditions.

The feed axes run on pre-loaded, backlash-free ball screws. Slideways are made of gray cast iron with special resin coating for the axial axis. The PLC puls-lubrication and anti-friction guides provide for a very low maintenance machine.

With a wide range of optional equipment the H series can be fitted to respond to almost every need, especially very demanding hobbing applications.

Common features at a glance

- + Dry or wet cutting
- + Direct drives for hob head and work table.
- + Hob heads in different variants with different speeds and torques



- + Steep and smooth panelling of the work area for optimum chip evacuation during dry machining.
- + Application-specific worktable designs
- + Grey cast-iron machine bed for optimum vibration absorption
- + Integrated coolant fluid circulation for maximum thermal stability



H 250 machines automated with ringloader and workpiece magazine with 50 stations.

Very long or heavy workpieces are worked without compromising quality





H 250/300/400

at a glance

- + All state-of-the-art hobbing and milling techniques
- + Safe investment with sufficient power reserves to exploit future tool developments
- + Hob head and work table variants depending on the application
- + Various loading and storing solutions, including ring and portal loaders

The H 250 and its larger sisters have been specifically developed for dry hobbing and high speed cutting applications. The machine is available in 3 different sizes up to 400 mm in diameter with a variety of different heads and table designs.

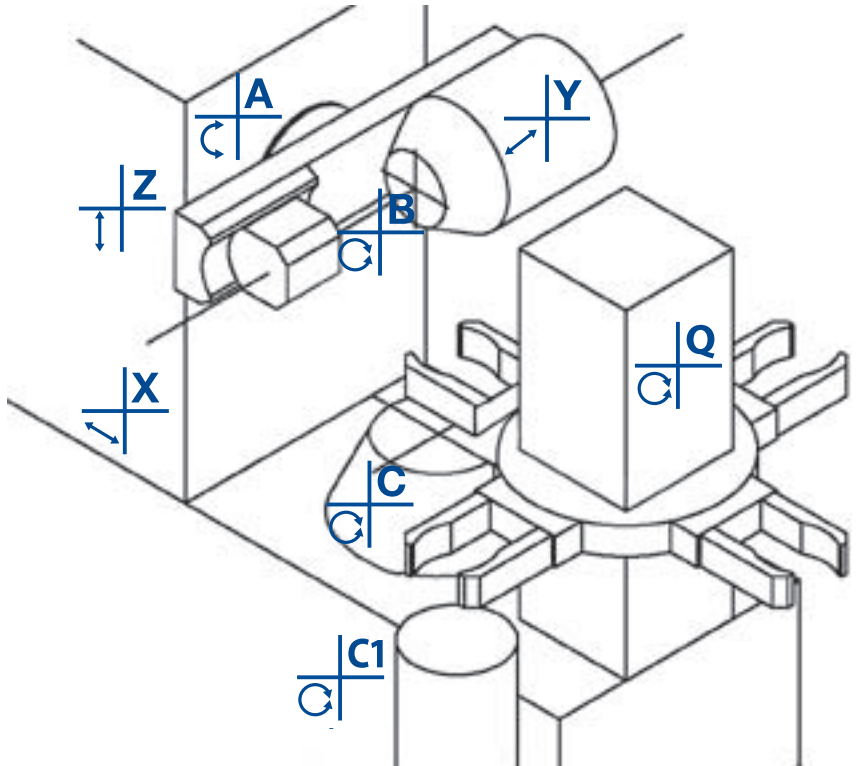
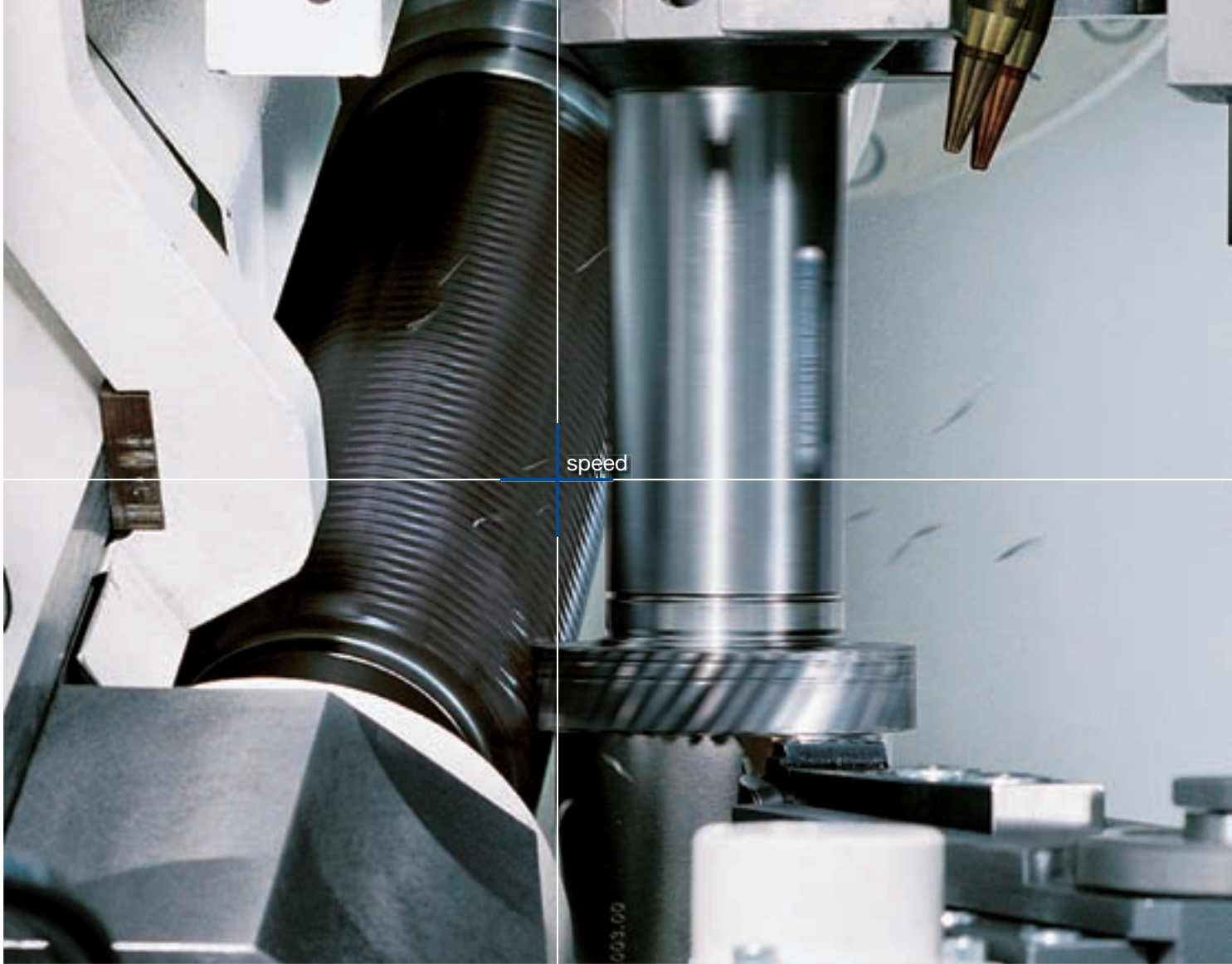
The H-series guarantees highest productivity for flexible small batches or for mass production of spur and helical gears, crowned and tapered gears, worm gears, chain wheels and ring gears, multiple gears, pinions and special profiles.

The machines employ all hobbing and milling technologies, dry and wet cutting, with HSS, solid carbide or inserted blade tools as well as skiving of hardened gears.

Automation solutions include ring and portal loaders, which are adapted to your specific application.

The large doors and swivelable control panel grant excellent access to the workarea while keeping control of the process at all times.





- A Hob head swivel
- B Hob spindle rotation
- C Work table rotation
- C1 Centrifuge rotation
- X Radial slide movement
- Y Tangential slide movement
- Z Vertical slide movement

- Q Ring loader swivel



H 250 CD

at a glance

- + Time-parallel hobbing and chamfering/deburring
- + One chamfering/deburring spindle with patented Samputensili tools
- + Completely integrated process with centralised control
- + Good accessibility for convenient operation

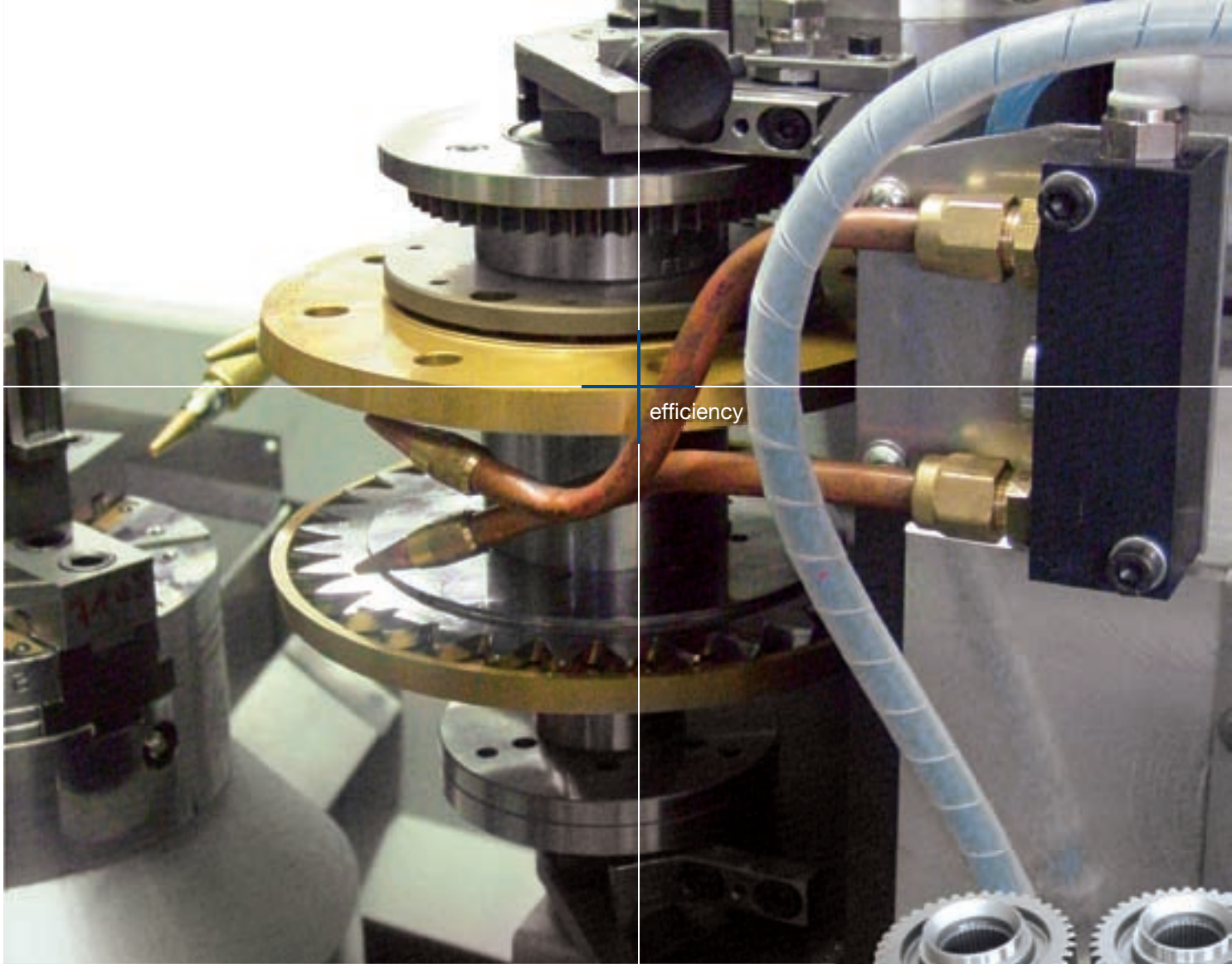
The H 250 CD is based on the modular H-series of hobbing machines. Its integrated chamfering/deburring unit deburrs gears and shafts up to 250 mm in diameter. Both processes are actuated time-parallel with minimum auxiliary times.

Workpieces are changed by a fast 4-station ring loader which positions workpieces directly on the magazine or conveyor band.

The chamfering/deburring process is completely integrated in the process chain by CNC and controlled by a unified, easy-to-use operator interface.

The chamfering deburring unit uses Samputensili chamfer-roller tools, which allow reliable operation with just one tool head.

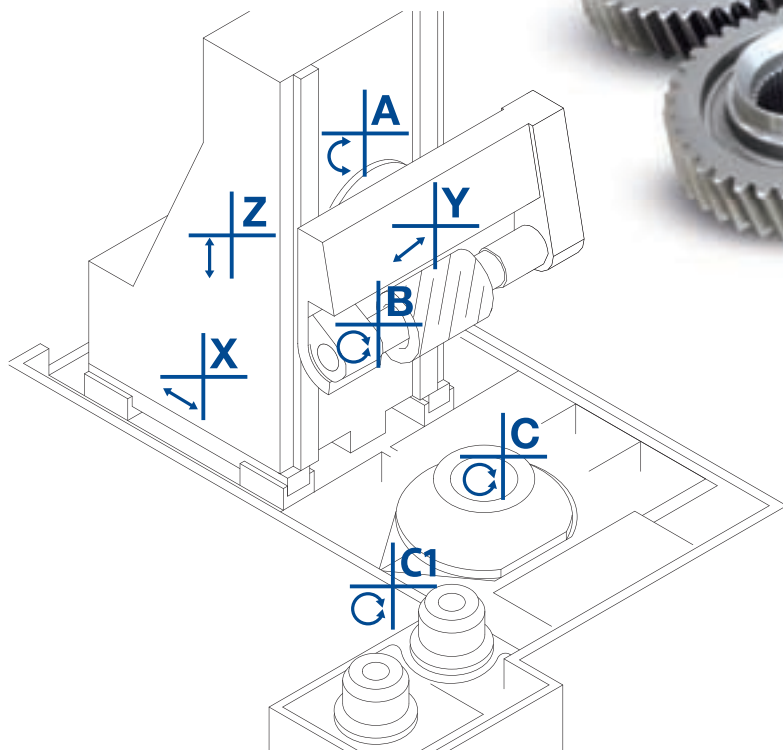




efficiency

- A Hob head swivel
- B Hob spindle rotation
- C Work table rotation
- C1 Auxiliary work table rotation
- X Radial slide movement
- Y Tangential slide movement
- Z Vertical slide movement

CD tool head hydraulically actuated





H 250 CDM

Maximum productivity in minimum space

The H 250 CDM is the ideal combination of full-scale hobbing and chamfering/deburring within an extremely compact unit. With its space-saving dimensions this solution allows the manufacturing of straight and helical gears and pinion shafts in a fast and efficient manner.

The modular construction principle enables the user to hob as well as chamfer/debur dry or wet. Both processes run parallel to avoid unnecessary auxiliary and support times as much as possible.

The light but stable aluminum construction of the portal loader ensures high acceleration rates and speeds. Its modular pick-and-place solution ensures the simple integration into existing production processes. The swivelling gripper wrist positions the workpieces either vertically or horizontally. During the hobbing process the portal loader is protected from swarf, dust and heat, making the machine much more reliable than other unprotected solutions.

CNC controlled axes guarantee problem-free setup.

at a glance

- + Time-parallel hobbing and chamfering/deburring
- + 2 chamfering/deburring spindles for full-scale operation
- + Completely integrated process with centralised control
- + Good accessibility for convenient operation
- + Fast and reliable portal loader



Hobbing with HSS hobs coated with new Sunite® Alcrona.



Gantry loader in light aluminium construction with swivelling gripper wrist.



Chamfering/deburring unit with two self-centering tool heads for one tool group each

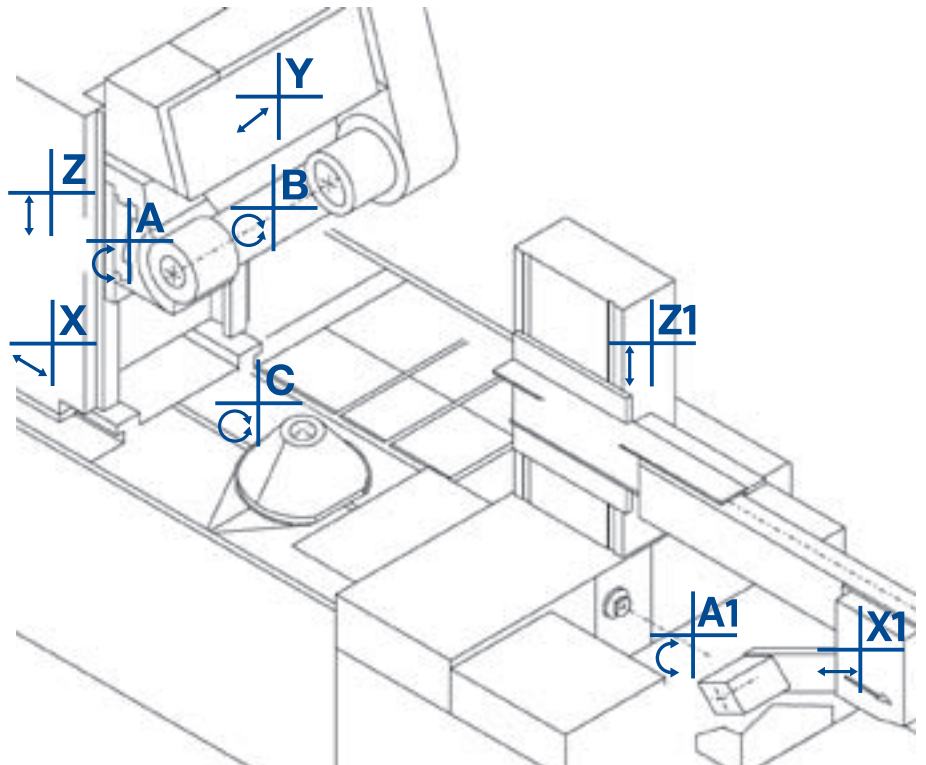
CDM at a glance

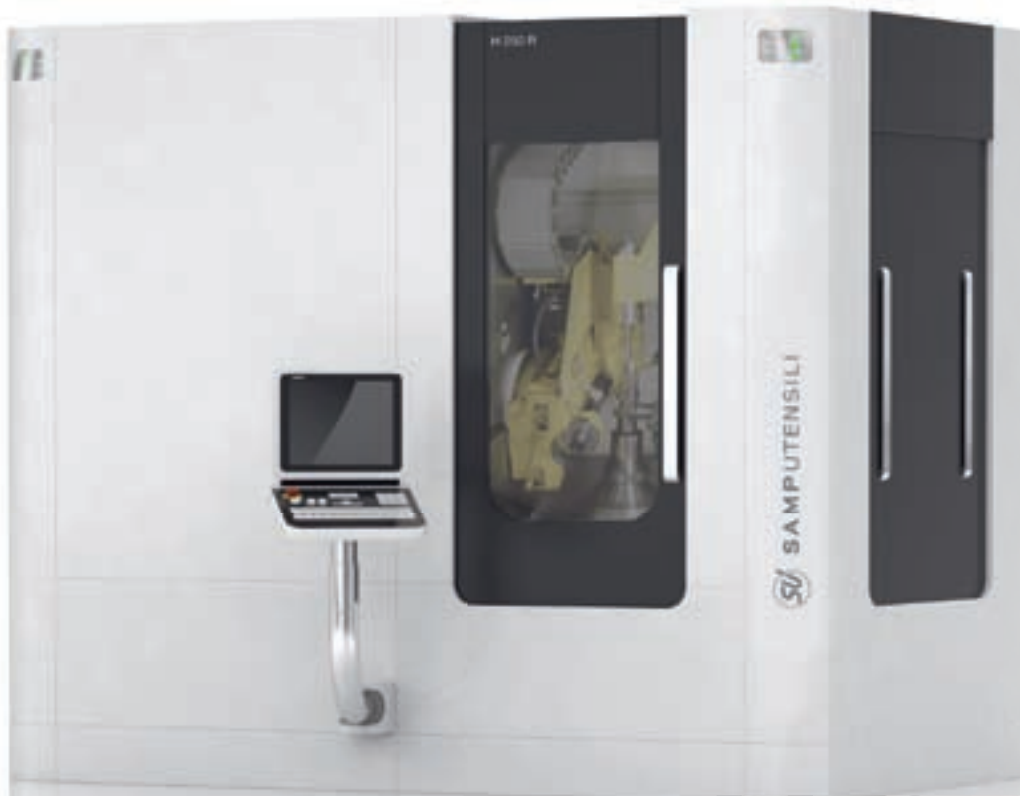
- + Horizontal workpiece axis for easier debris fall. Less clogging of tools, resulting in longer tool life and improved quality of the workpieces
- + Automatic meshing between tools and workpiece
- + Quick-clamping system for revolving and directly-driven tools
- + Motorised work spindle with continuously variable speed
- + Adjustable tailstock allows adaptation to the workpiece geometries to be machined



The S 250 CDM is controlled by the Siemens control 840 D, with both processes – hobbing and chamfering/rolling/deburring – completely integrated via HMI-Pro. A standard, operator guidance and user interface allows simple control, fault diagnosis and correction of processes. Furthermore, the different processes, including the gantry loader, may be chosen and run separately.

- A Hob head swivel
 - B Hob spindle rotation
 - C Work table rotation
 - X Radial slide movement
 - Y Tangential slide movement
 - Z Vertical slide movement
-
- B1 Loader gripper swivel
 - X1 Loader horizontal movement
 - Z1 Loader vertical movement





H 250 R

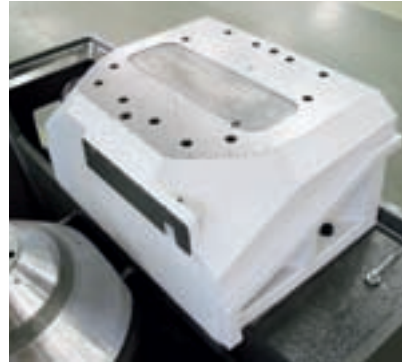
The H 250 R is the strongest, high-torque version within the H 250 series. Its sturdy hob head is driven by a high torque drive for applications with large modules and tooth depths that require higher cutting forces. The H 250 R is also fitted with a counter column extension in order to clamp longer workpieces, such as rotors and long shafts.

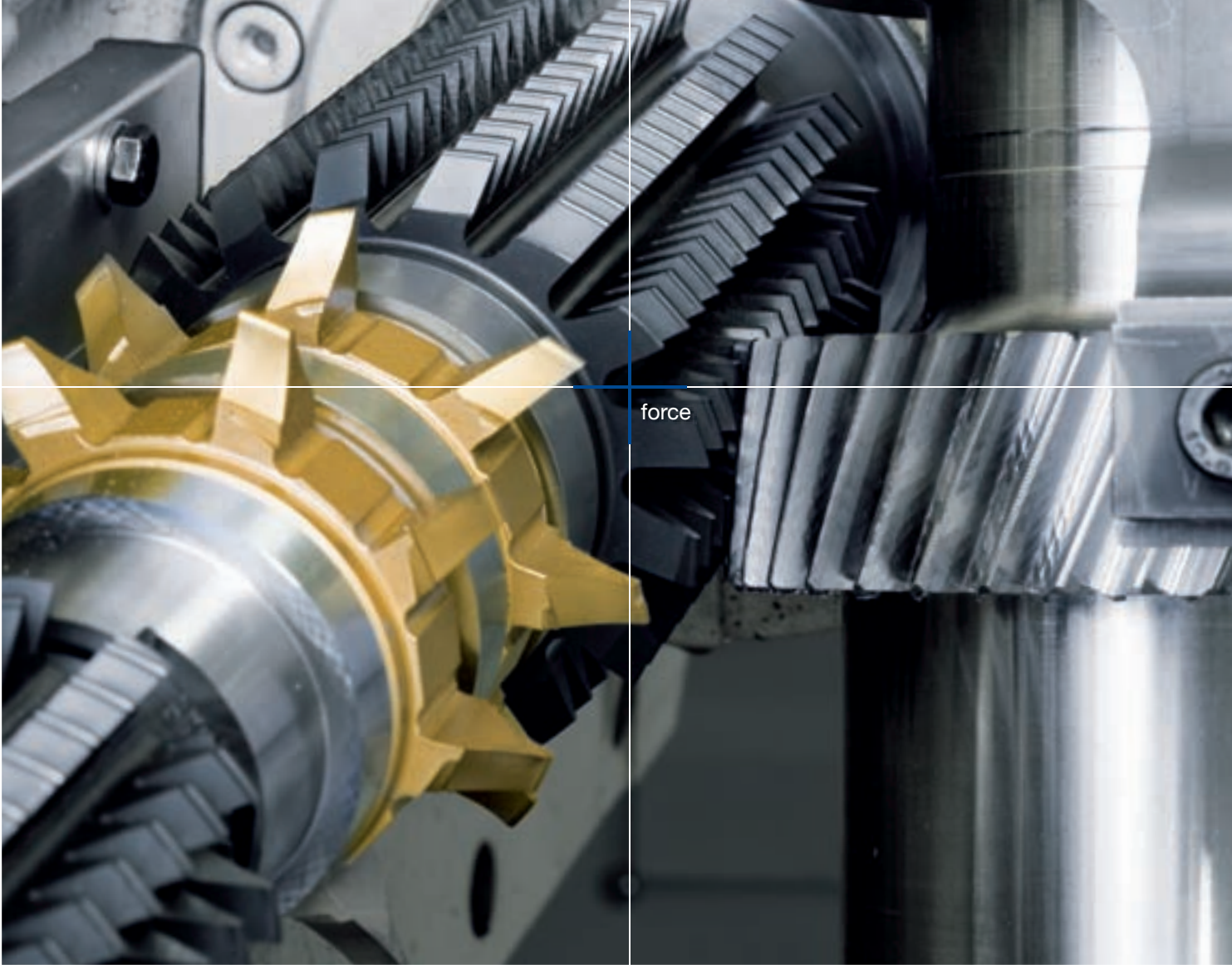
For more efficient handling, the H 250 R can be fitted with a heavy ring loader or can be directly linked to an external robotic loader.

The H 250 R is available with a rotor-specific software package, developed under real manufacturing conditions.

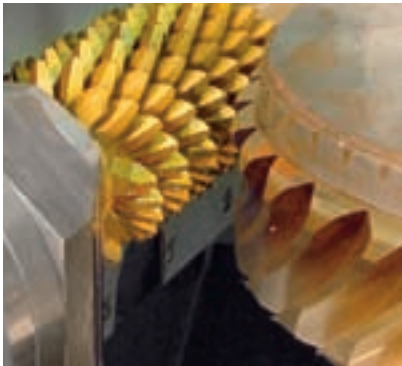
at a glance

- + Extra powerful torque spindle for high stock removal
- + Enlarged swivel angle
- + Extended counter column for longer workpieces
- + Especially suited for inserted blade tools
- + Tried and tested roughing software





- Hobbing of shafts with integrated chamfering/
deburring via chamfer hobs
- Hobbing of large brass worm gears
- Hobbing of pinions
- Hobbing of pump gears with integrated chamfering/
deburring via Samputensili chamfer hobs
- Hobbing of brass worm gears





H 600/800

The H 600 / 800 is a very stable and rigid machine for the most demanding cutting tasks. The machine employs all hobbing techniques (axial, radial/axial, tangential and diagonal) of spur and helical gears using one or multiple cut technology with climb or conventional feed, exploiting the different tool solutions available on the market.

For workpieces with larger modules and tooth depths, the H 600 is also available as a reinforced version, featuring an extra high-torque hob head, an enlarged swivel angle range and an extended counter column to cut long and slim shapes like rotors or longer shafts.

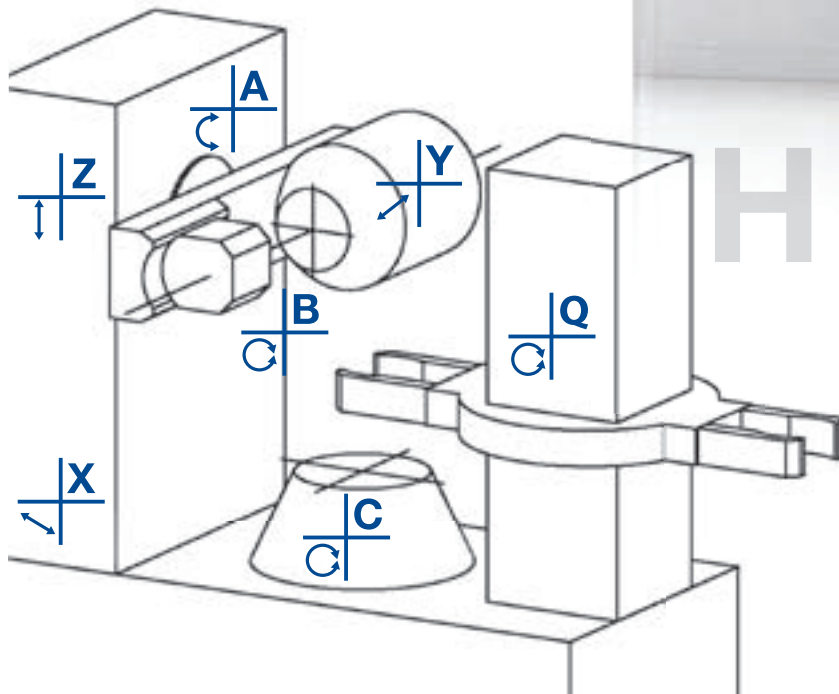
at a glance

- + Very stable and rigid structure
- + Compact layout with integrated auxiliary units
- + Direct drive hob head
- + Direct drive work table
- + Standard and special work-piece support solutions
- + R version with high-torque hob head, enlarged swivel angle and extended counter column
- + Ring loader for heavy workpieces





power



H 600 R

- A Hob head swivel
- B Hob spindle rotation
- C Work table rotation
- X Radial slide movement
- Y Tangential slide movement
- Z Vertical slide movement
- Q Ring loader swivel

All service units are incorporated in the compact machine hull

Self-sufficient units reduce the overall amount of time spent on regular maintenance work thanks to functions such as automatic part lubrication or maintenance intervals.

Preventive maintenance requirements are therefore limited to periodic inspection and are automatically prompted by the CNC.

With all service components located in clearly visible and accessible areas, servicing itself is easier and less time-consuming than ever before.

All auxiliary units incorporated in the machine hull

Service-friendly auxiliary units

Easily accessible auxiliary units

Automatic preventive maintenance cycles

Automatic periodic inspection prompts

+ Easily transported

+ No special hoisting equipment required.

+ Fast and simple installation and setup

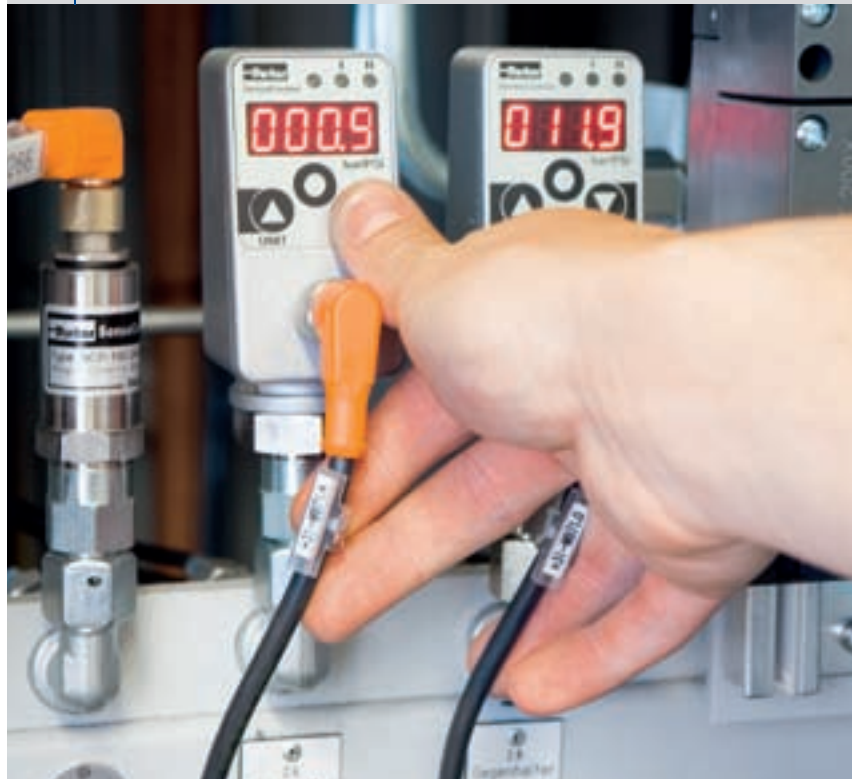
+ Simple relocation

+ Reduced maintenance requirements

+ Easier and more efficient maintenance

+ Less machine downtime for servicing purposes

+ Fast and easy servicing.





We build machines for efficient, error-free and safe manufacturing, for daily use and for people

The H-series is equipped with the latest Siemens CNC Sinumerik 840 D control unit. With a user-friendly Samputensili menu-guided operator interface running in a true Windows® environment, users are guided through the manufacturing process via easy and intuitive entry and demonstration screens and are supported by data validation and error correction software.

Machines can be connected to a network or to the internet, allowing you direct access to our online service department for remote troubleshooting and easy software upgrades.

Latest control technology ready for direct networking, USB interface included

Modular software packages including profile and flank correction possibilities

Integrated Transline and Profisafe functions

Samputensili menu-guided operator interface



- 1) Transline 2000 for line integration requirements
- 2) Easy and intuitive data entry interface
- 3) Fast and immediate correction possibilities
- 4) Safety-integrated for superior safety functions



CD 350 H

The universal and flexible solution

The universal chamfering and deburring machine is equipped with two tool heads designed for manufacturing spur and helical gears and shafts.

The standard CD 350 H features a shuttle feed loader for manual loading/unloading and can be easily connected to a gantry loader or a robot.

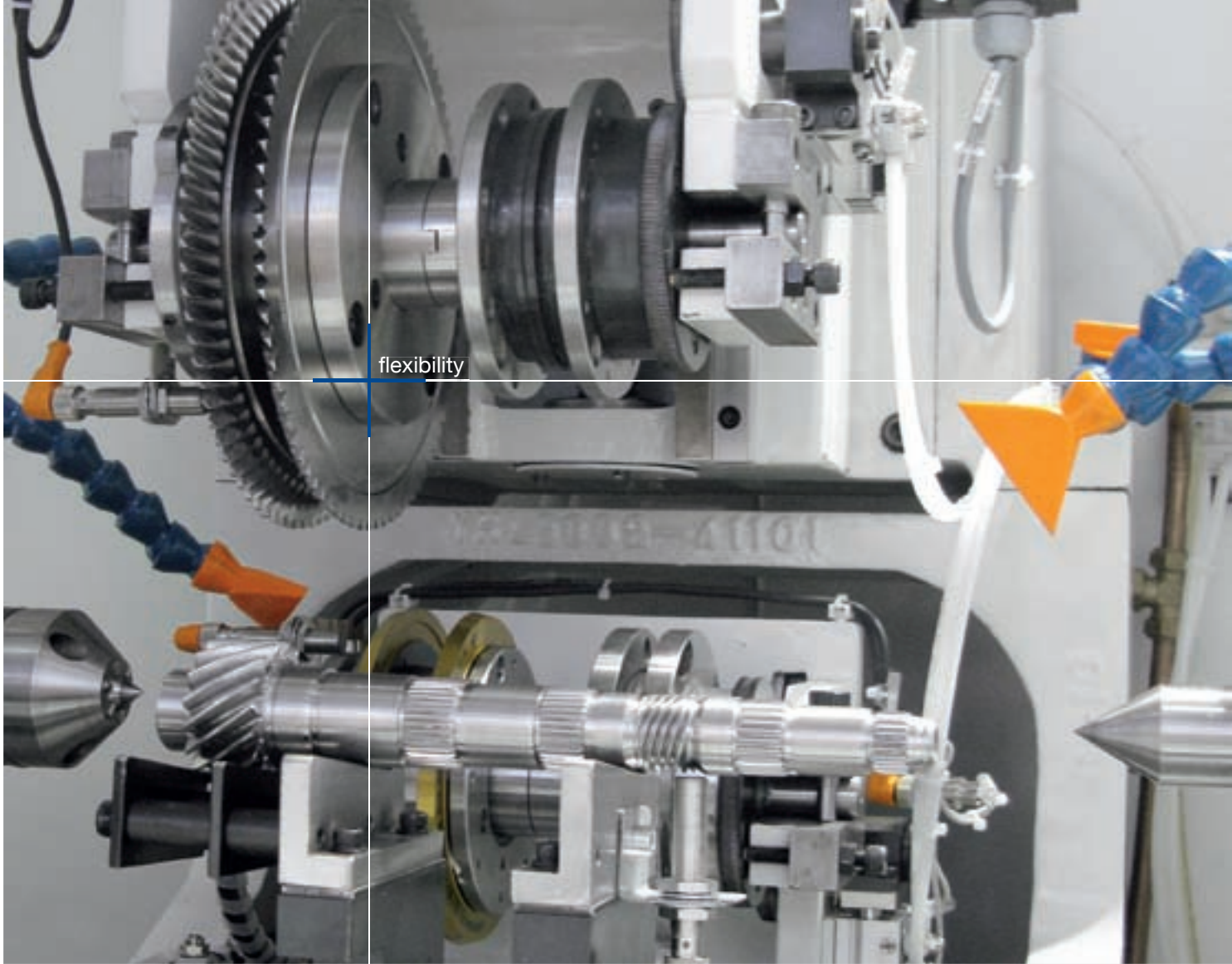
Without fancy extras or unnecessary complications it is a very stable, small-footprint machine, which allows its user a very flexible and economic removal of burrs and nicks. Tools and workpieces are automatically meshed and centered. Existing Samputensili tools and tool groups are compatible with the S-CD series.

The machine is controlled by a Siemens Sinumerik 802 D. The operator is guided by the intuitive Samputensili user menu through the setup and the work cycle.

at a glance

- + Universal solution for gears and shafts
- + Economic and simple design
- + Flexible manufacturing of very small or large lots
- + Complete solution including machine, tool and application know-how





flexibility

Combined chamfering and deburring process

The deburring operation uses proven and reliable Samputensili deburring tool heads, spring-loaded to compensate for face width variations.

The chamfering operation uses either a combined group of chamfering and deburring tools or the patented Samputensili Chamfer-Roller tools. The two tool heads are meshed automatically with the workpiece by the NC-control.

Self-centering tools guarantee symmetrical chamfers on both sides of the workpiece even where there are slight displacements between adjacent teeth (for example cluster gears). This results in symmetrical and constant chamfers on all teeth



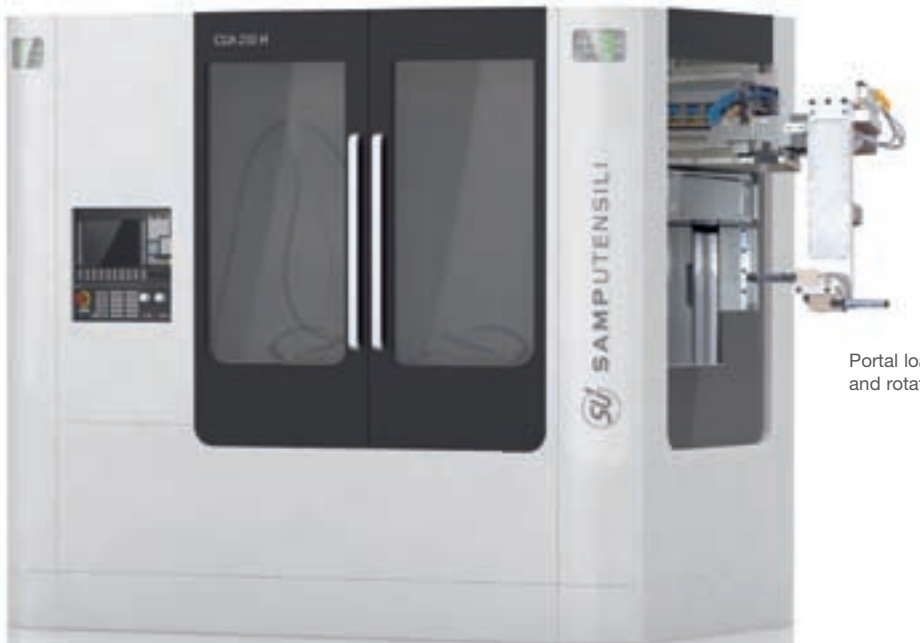
Deburring of a chain sprocket gears



Samputensili chamfering/deburring tools



Samputensili patented Chamfer-Roller Tool



Portal loader with swivel arm and rotating double gripper.

CDA 250 H

The automated solution for larger lots

The chip and swarf sump are located directly below the work area of the stable electro-welded steel structure. The horizontal workpiece axis supports continuous chip evacuation, and the tools are not clogged with chips for longer tool life and better workpiece quality.

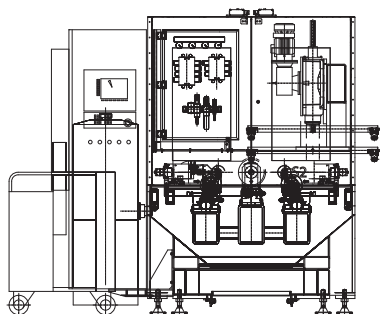
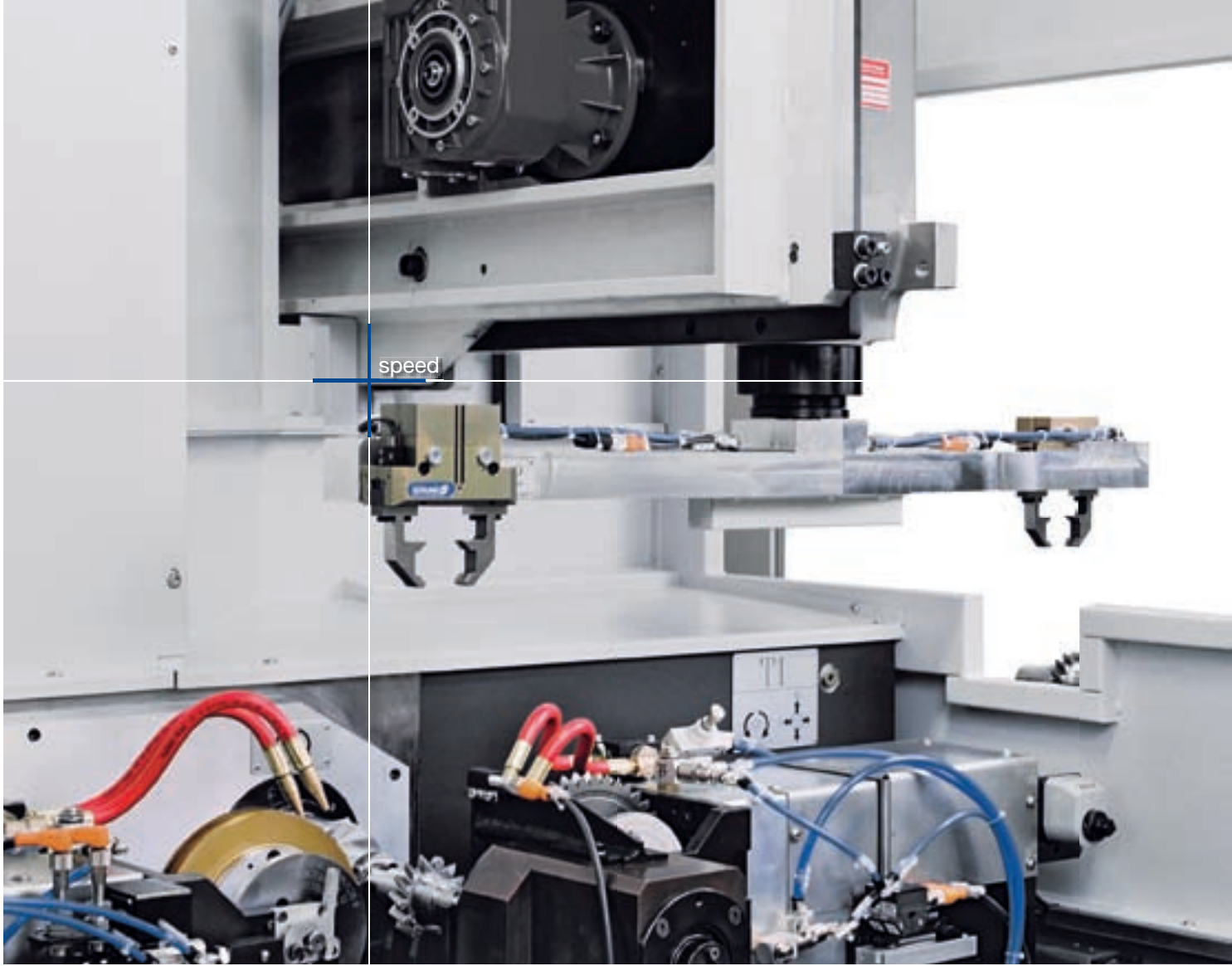
The workpiece spindle is motorised with mechanical reductor and steplessly controlled speed. Rotating pneumatic cylinder clamp workpieces reliably. A manually adjustable tailstock permits to adapt to the geometry of the workpieces to be machined.

The machine is controlled by a Siemens Simatic S7-300 PLC. The operator is guided by the intuitive Samputensili user menu with its unified operator interface.

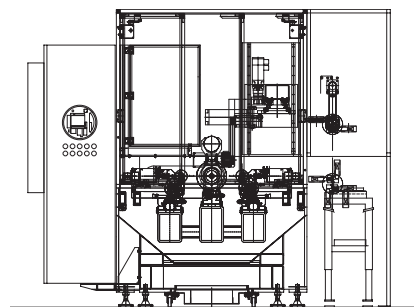
at a glance

- + Automated solution for the economic manufacturing of large workpiece lots
- + Easy integration into existing production lines
- + Flexible manufacturing of gears and shafts
- + Dry and wet processing
- + Auto-meshing and auto-centring between tool and workpiece
- + Quick-change clamping system for idling and driven tools





CDA 250 H with swivel loader



CDA 250 H with portal loader and double-gripper

The CDA 250 H is available with a simple swivel loader as well as a portal loader with double-gripper.

These pick-and-place solutions allow for the easy integration of the machine into existing production processes. Workpieces can be lifted and set down in horizontal or vertical manner. Additional cost-intensive automation is not required.



CDX 250 H

Productivity and flexibility in one

Two sliding revolver heads on the CDX 250 H, capable of mounting up to 5 different tool groups, allow a total of 10 tool groups, creating a wealth of tool combinations.

Controlled by a Siemens Sinumerik 840D, the CDX 250 H has an intuitive Samputensili operator menu, making setup and operation fast and easy.

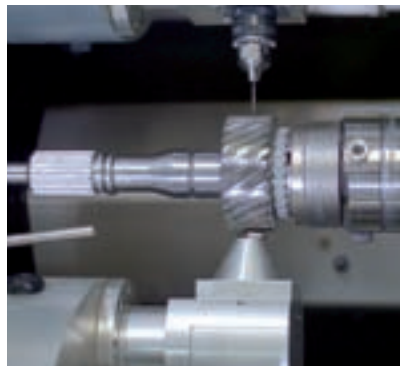
Optionally the CDX 250 H may be fitted with a drilling unit for the creation of coolant holes on the workpieces in lieu of a tool head. An integrated centering unit ensures the correct positioning of the workpiece to avoid drill bit breakage. A laser unit checks if the drill tool is still intact.

The S 250 CDX can adapt to a wide range of automation systems. An integrated gantry is standard.

The S 250 CDX 's loader, with double gripper, is controlled by the

at a glance

Chamfering and deburring of shafts with up to 5 different gearings or of the same workpiece family as well as different gears without reoccurring tool changes or resetting of the machine. This includes the manufacturing of coolant holes – as long as the same clamping equipment can be employed.



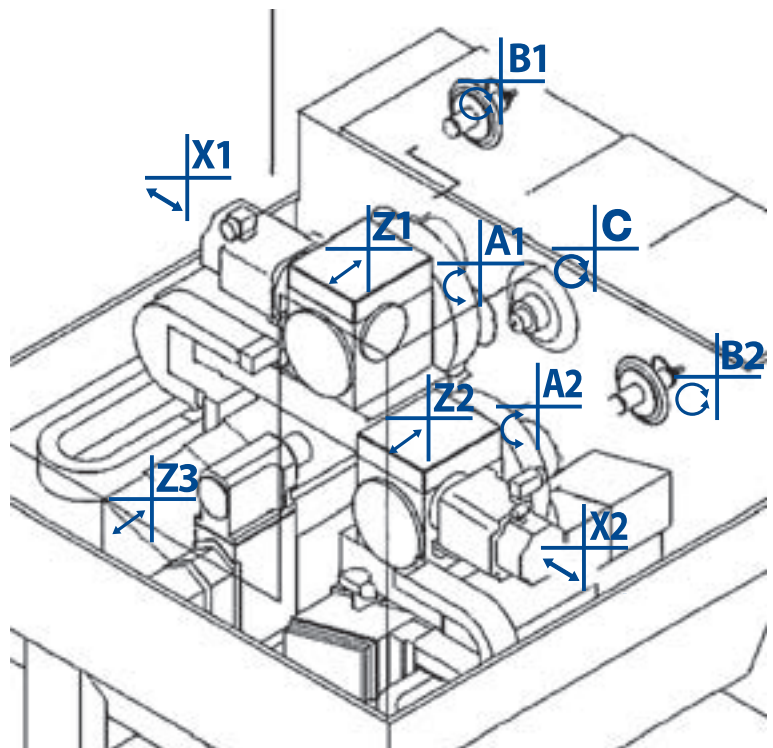


machine's CNC. The functions of the gripper itself are pneumatically actuated (swivel, opening, closing). For the manufacturing of gears a pneumatically actuated gripper wrist is added in order to work the workpieces horizontally and then to place them vertically on the pallets.

In addition we offer options like pick & place gantries, palleting and storage systems as well as heavy-duty loaders for workpieces of up to 30 kg.

- A1 Tool drum 1 swivel
- A2 Tool drum 2 swivel
- B1 Tool spindle 1 rotation
- B2 Tool spindle 2 rotation
- X1 Tool slide 1 radial travel
- X2 Tool slide 2 radial travel
- Z1 Tool slide 1 axial travel
- Z2 Tool slide 2 axial travel

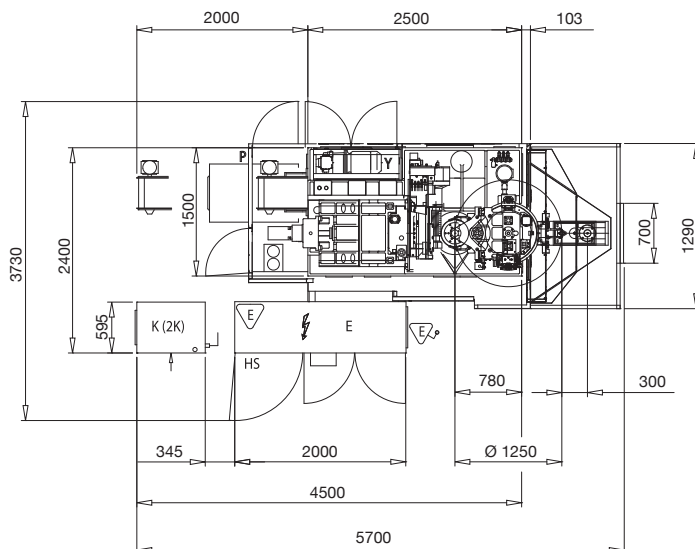
- C Work spindle rotation
- Z3 Tailstock regulation



Technical data hobbing machines

		H 250	H 250 R
Workpiece diameter, max.	mm	250	250
Module, max. (single indexing milling)	mm	4.5	8.0 (5.0)
Work table diameter / bore diameter (D/E)	mm	170/100	170/100
Tool head swivel range (optional)	degree	+/- 45	+/- 45
Centre dist. work spindle / tool spindle (optional)	mm	25...205	25...205
Axial travel, max. (optional) (G)	mm	400 (600)	400 (600)
Radial travel, max. (A/B)	mm	180	180
Tangential travel, max.	mm	240	240
Radial feed	mm/min	10,000	10,000
Axial feed	mm/min	5,000	5,000
Tangential feed (optional)	mm/min	2,500 (10,000)	2,500 (10,000)
Tool spindle power (optional)	kW	18.5 (31)	14 (31)
Tool diameter (optional)	mm	130	175 (130)
Tool length bore type (shank type)	mm	300 (325)	300 (325)
Tool arbour clamping fixture taper		collet Ø 32 /SK25 HSK A-80/cylindrical HSK A_80/SK25	collet Ø 32 /SK25 HSK A-80/cylindrical HSK A_80/SK25
Tool spindle speed, max. (optional)	rpm	1,800 (3,000)	800 (3,000)
Work table speed, max.	rpm	600	400
Work table load, max.	N	20,000	20,000
Total connected load / with coolant filtration unit	kVA	55	55
Machine weight, incl. std. equipment (without loader and/or automation)	kg	9,500	9,500

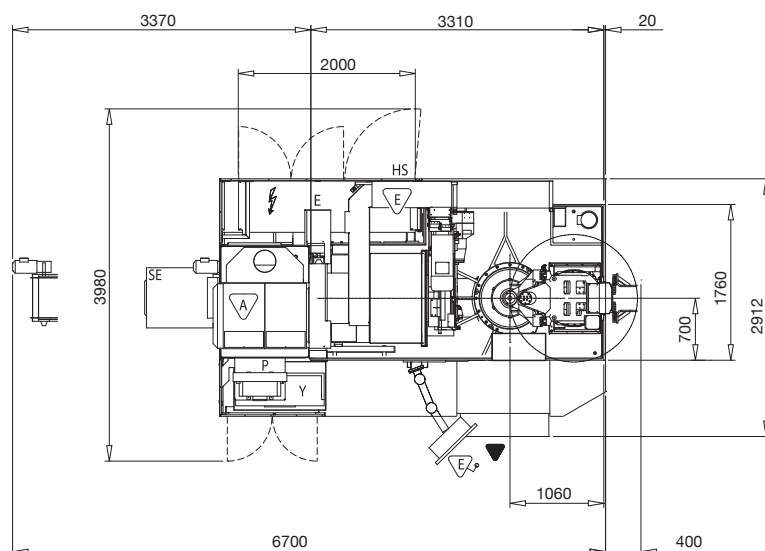
*) Depending on wheel dimensions. Technical data is subject to change without prior notification. Max. values depend on the application.



H 250-400
H 250 R



H 300	H 400	H 600	H 600 R	H 800
300	400	600	400	800
6.0 (5.0)	6.0 (5.0)	12.0 (14.0) / 18.0 (22.0)	18.0 (22.0)	12.0 (14.0) / 18.0 (22.0)
250/100	330/150	500/180	400/180	630/220
+/- 45	+/- 45	+/- 45	+/- 45 (-120)	+/- 45
40...225	60...285	70...495 (10..435)	10...435	70...595
400 (600)	400 (600)	450 (800)	800	450 (800)
215	225	425	425	525
240	240	320	350	320
10,000	10,000	5,000	5,000	5,000
5,000	5,000	4,000	4,000	4,000
2,500 (10,000)	2,500 (10,000)	3,000	3,000	3,000
14 (31)	14 (31)	22 (30)	30	22 (30)
175 (130)	175 (130)	210 (300)	300	210 (300)
300 (325)	300 (325)	400	400	400
collet Ø 32 /SK25	collet Ø 32 /SK25			
HSK A-80/cylindrical	HSK A-80/cylindrical	SK50/ cylindrical		SK50/ cylindrical
HSK A_80/SK25	HSK A_80/SK25	SK50/SK30	HSK A-100/ cylindrical	SK50/SK30
800 (3,000)	800 (3,000)	600 (800)	800	600 (800)
400	400	100	100	100
20,000	20,000	32,000	32,000	32,000
55	55	80	80	80
9,500	9,500	17,000	17,000	17,000

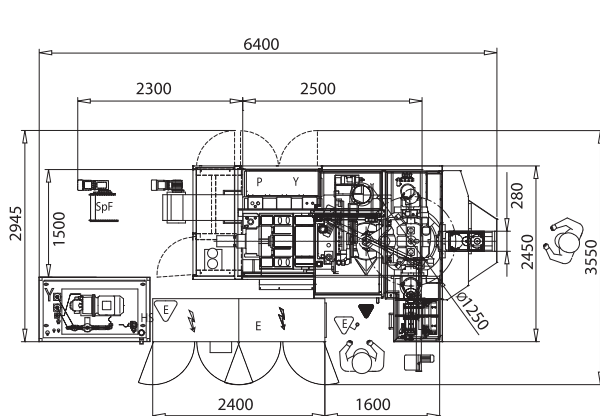


H 600/800
H 600 R

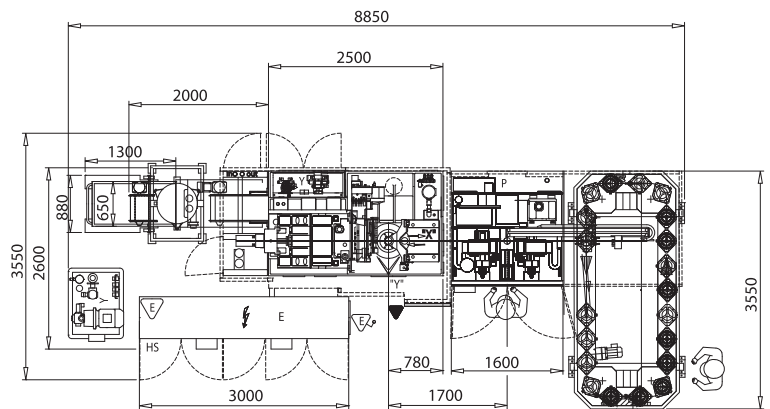
Technical data hobbing / chamfering deburring solutions

		H 250 CD*	H 250 CDM*
Number of tool spindles	-	1	2
Automation	-	Ring loader	Portal loader
Workpiece diameter, max.	mm	15 - 250	15 - 250
Module, max.	mm	8.0	8.0
Face width, max.	mm	4 - 150	4 - 150
Workpiece length (optional), max.	mm	450	450
Tool spindle power	kW	1.5	1.5
Control	-	Simatic S7-300 PLC	Sinumerik 840 D CNC
		Sinumerik 840 D CNC	
Tool spindle speed, max.	rpm	32,500	20,000 / 40,000
Work spindle speed	rpm	0 - 600	0 - 600
Workpiece weight, max.	kg	4.5	4.5
Total connected load	kVA	55	55
Machine weight, including standard equipment	kg	14,500	14,500

*) for hobbing data see H 250 **) Automated ***) Gearing at extremity of workpiece
 Technical data is subject to change without prior notification. Max. values depend on the application.



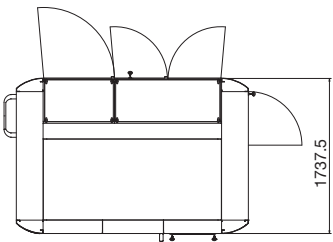
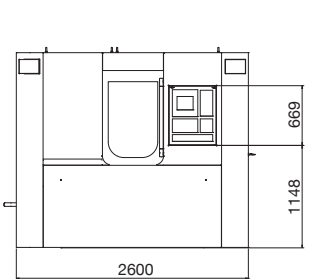
H 250 CD



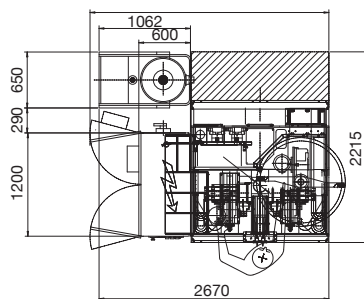
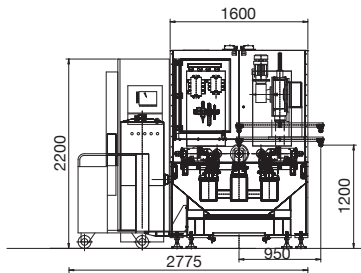
H 250 CDM



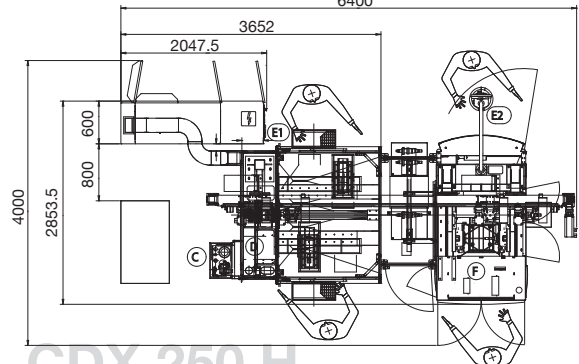
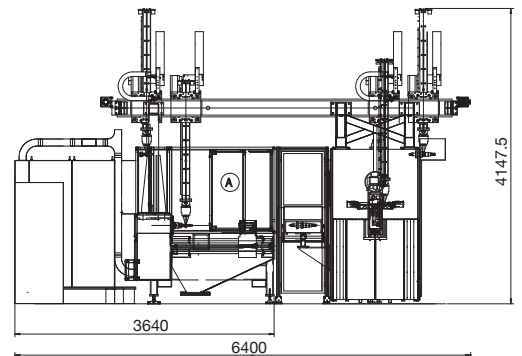
CD 350 H	CDA 250 H	CDX 250 H
2	2	2 x 5 = 10
-	Swivel loader	Portal loader (opt.)
30 - 350	15 - 250	15 - 250
8.0	8.0	8.0
4 - 150	4 - 150	50
750 / 500***	450	700 / 400**
1.5	1.5	1.5
Sinumerik 802 D	Simatic S7-300 PLC	Sinumerik 840 D CNC
0 - 20,000	4,000	8,000
0 - 1,000	0 - 600	0 600
12	4.5	30 / 15**
4	12	45
2,500	3,100	10,000



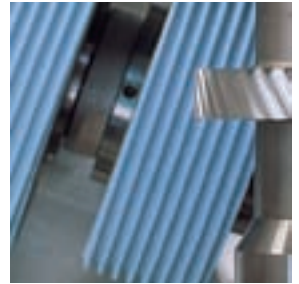
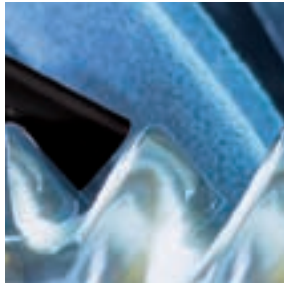
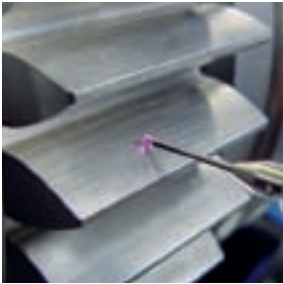
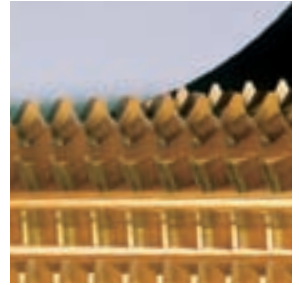
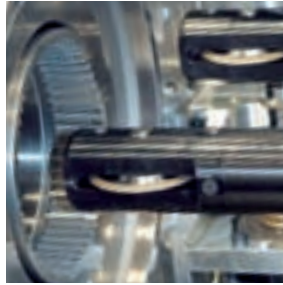
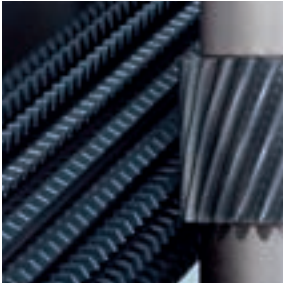
CD 350 H



CDA 250 H



CDX 250 H



Star SU LLC
 5200 Prairie Stone Parkway, Suite 100
 Hoffman Estates, IL60192
 USA
 Phone: +1 (847) 649 1450
 Fax: +1 (847) 649 0112
 sales@star-su.com

Star SU Federal de México S. de R.L. de C.V.
 Acceso V Nave 20 No.115-A
 Desarrollo La Montaña 2000 Sección III
 Querétaro Qro. 76150 México
 Phone: +52 (442) 217 34 45
 Fax: +52 (442) 217 34 46
 sales@star-su.com

www.star-su.com