OILFIELD INDUSTRY

Machines and complete finishing lines from a single source

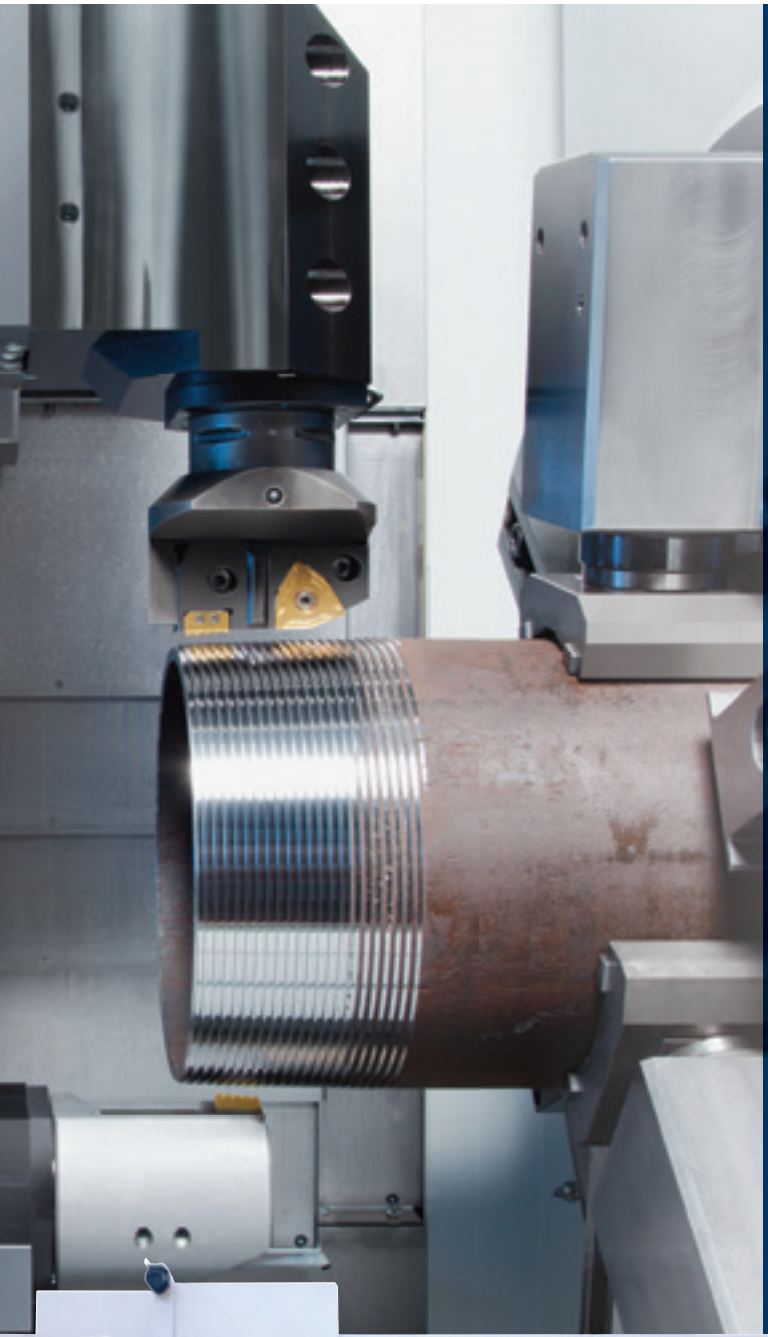
EMAG

USC 21 – THE MACHINE CONCEPT FOR FLEXIBLE PIPE END MACHINING

The USC series is characterized by the rigid machine construction. The MINERALIT® polymer concrete machine bed ensures that all machine components are mechanically very stable.

Both external and internal machining of pipe end can be carried out in a single machine. This concept is ideal for the complete machining of all common threaded connections according to the API and GOST standard, as well as all company-specific thread connections (Premium thread connections), including integral thread connections. The main drive of the pipe machining center is integrated into the spindle unit and ensures both high motor power and high torque.

The direct drive consists of a highly dynamic, frequency-controlled and maintenance-free AC asynchronous spindle motor. Hydraulic operated EMAG front-end and rear-end chucks provide stable pipe clamping (pneumatic or mechanical operated chucks are also available as an option).



ADVANTAGES

- Modular design
- The ideal platform for multifunctional manufacturing solutions, from single-spindle to fully automated manufacturing systems
- Extremely stable and low-vibration base body made of high-quality MINERALIT® polymer concrete
- Powerful, directly controlled spindle motors
- Direct-switching tool carriers
- Highly precise, pre-tensioned linear roller guides for maximum manufacturing accuracy and high dynamics
- Absolute measuring system for constant high precision
- Liquid-cooled, temperature-controlled main assemblies, such as spindle motor, tool carrier and control cabinet, are the basis for the highest quality workpieces
- Safe, wear-free and maintenance-free work area cover provides ideal chip fall. The chips fall downwards without being destroyed or hindered

TECHNICAL DATA

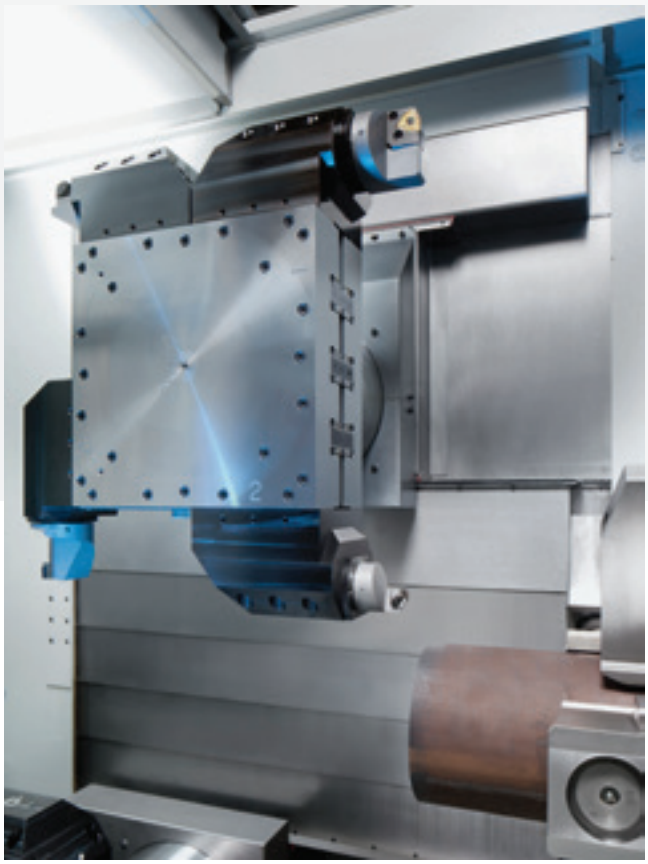
USC 21		290	450
Nominal diameter	inch	2-3/8" - 10-3/4"	4-1/2" - 16"
Spindle Ø (max.)	mm	290	450
X-axis travel	mm	350	350
Z-axis travel	mm	600	600
Main drive power	kW	120	120

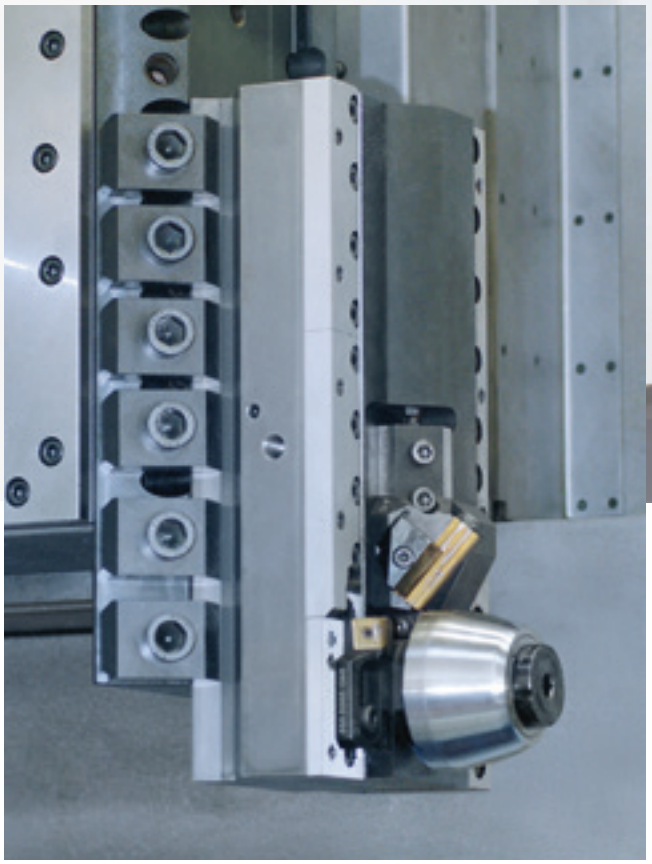
A SPECIAL MACHINE AT THE HIGHEST LEVEL OF FLEXIBILITY

The USC 21 machine concept is specially designed for machining pipe ends. All the features that are responsible for quality, durability and maximum productivity are combined in an excellent way with a flexibility that covers all applications in the standard and premium size range.

Thus, by selecting two spindle sizes, all pipe diameter ranges from nominal diameter 2 3/8“ to 16” can be machined under the best possible technological and customer-specific conditions.

Left- and right-handed machine versions are available for integration into the overall process. The USC machines are ideal for API and GOST thread connection and really come into their own with premium thread connections. Other important applications include copy-plan and chamfering on line pipes.

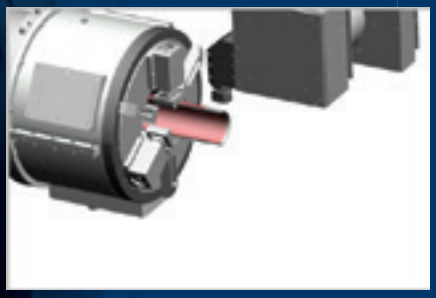




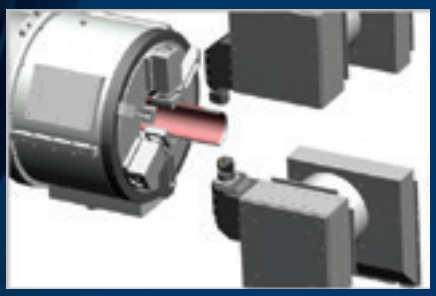
Special tooling allows beveling of pipe ends on line pipes on the USC machines

THE USC 21 SERIES

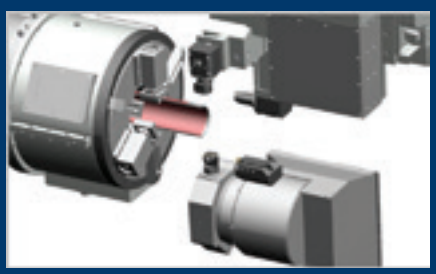
The USC 21 series is designed as a modular system for 2-, 4- or 6-axis machining. Centering devices for external and internal centering, pipe stops and setting devices for decoupleable plugs are mounted on further separate axes.



2-axis machining



4-axis machining

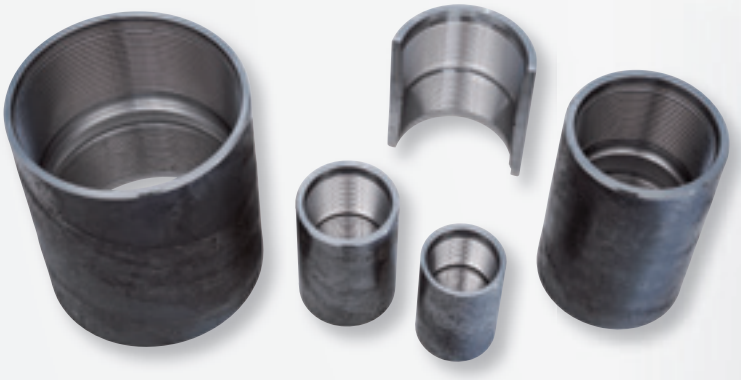


6-axis machining

COUPLING PROCESSING MACHINES FOR THE OILFIELD IN

EMAG – a leading manufacturer of OCTG machine tools – offers customized manufacturing solutions for threading. These modern machine tools cover all threaded connections in the OCTG sector, in accordance with international standards (API, GOST) and company-specific standards (premium thread connections).

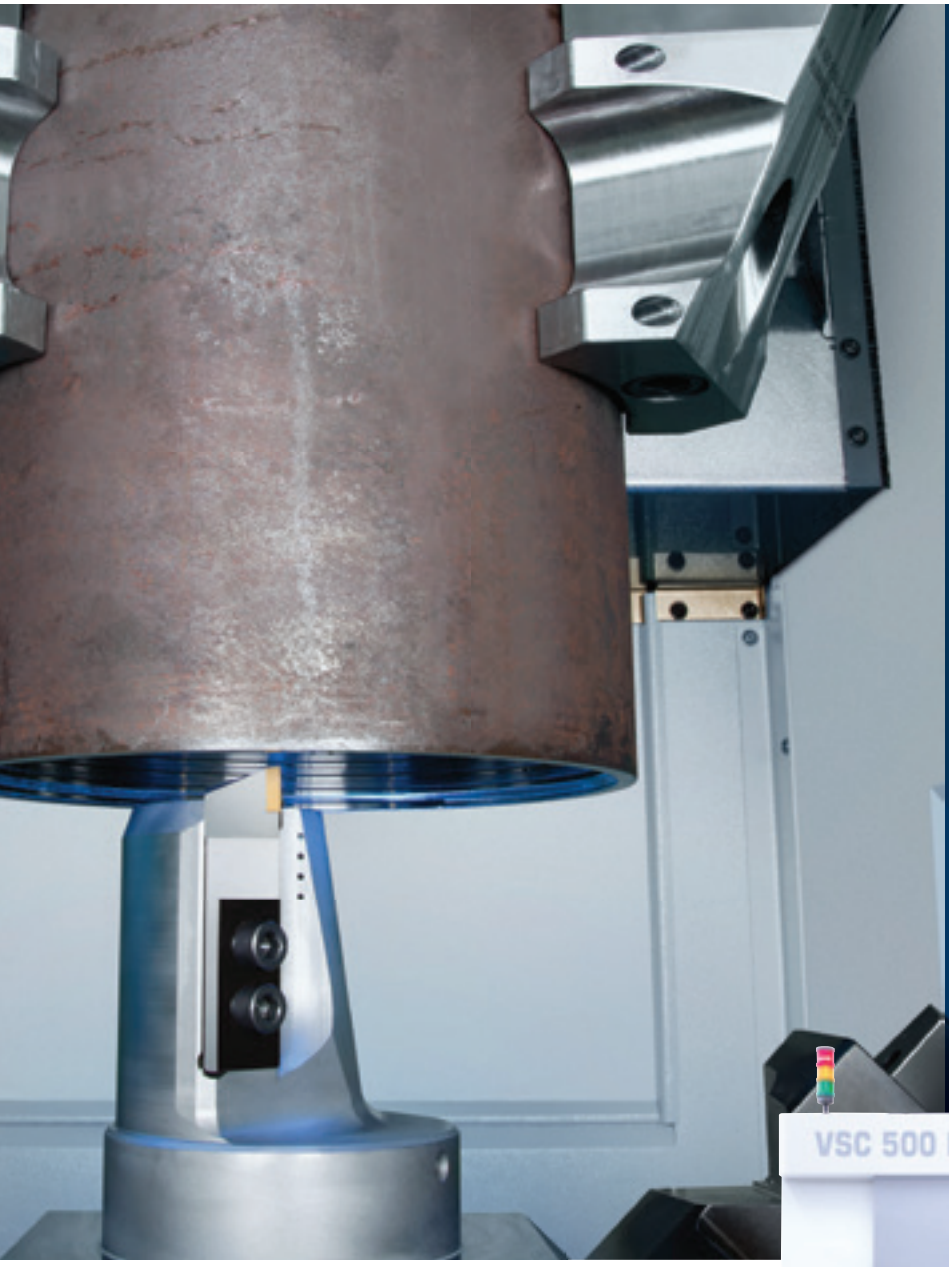
The turning machines of the VSC series load themselves via the pick-up spindle. Whether the workpiece is loading/unloading from the left or right, the workpiece flow and thus, the arrangement of the turning machines in production lines is freely selectable. The advantage: both the space requirement and the costs for the interlinking are considerably reduced. Integration into coupling shop is also ensured by the connection of a wide range of automation components.



TECHNICAL DATA

		VSC 450	VSC 500
Nominal diameter	inch	$2^{3/8}$ – $6^{5/8}$	$2^{3/8}$ – $13^{3/8}$
Chuck diameter, max.	mm inch	450 18	550 21
Swing diameter	mm inch	520 20	555 22
X-axis travel	mm inch	935 36	925 36
Z-axis travel	mm inch	315 12	400 16
Torque, max.	Nm ft-lb	1,100 811	2,530 1.866

NDUSTRY



ADVANTAGES:

- Each machine is a manufacturing cell, because the machine loads itself via the pick-up spindle
- Extremely short distances and equally short times for loading and unloading
- The workpiece performs the movements, the tool carriers are stationary
- Ideal, free chip fall, because the tools are arranged below the workpiece
- The hydrostatically mounted work spindle in the Z-axis ensures high part quality and long tool life when machining soft materials.
- All assemblies that determine the accuracy are liquid cooled.
- Safe, wear-free and maintenance-free work area cover.

TECHNICAL DATA

		VSC 450 DUO	VSC 500 DUO
Nominal diameter	inch	$2^{3/8}$ – $6^{5/8}$	$2^{3/8}$ – $13^{3/8}$
Chuck diameter, max.	mm inch	450 18	550 21
Swing diameter	mm inch	520 20	555 22
X-axis travel	mm inch	935 36	925 36
Z-axis travel	mm inch	315 12	400 16
Torque, max.	Nm ft-lb	1,100 811	2,530 1.866

VL 6/VL 8 – THE PRECISE EMAG STANDARD FOR THE P

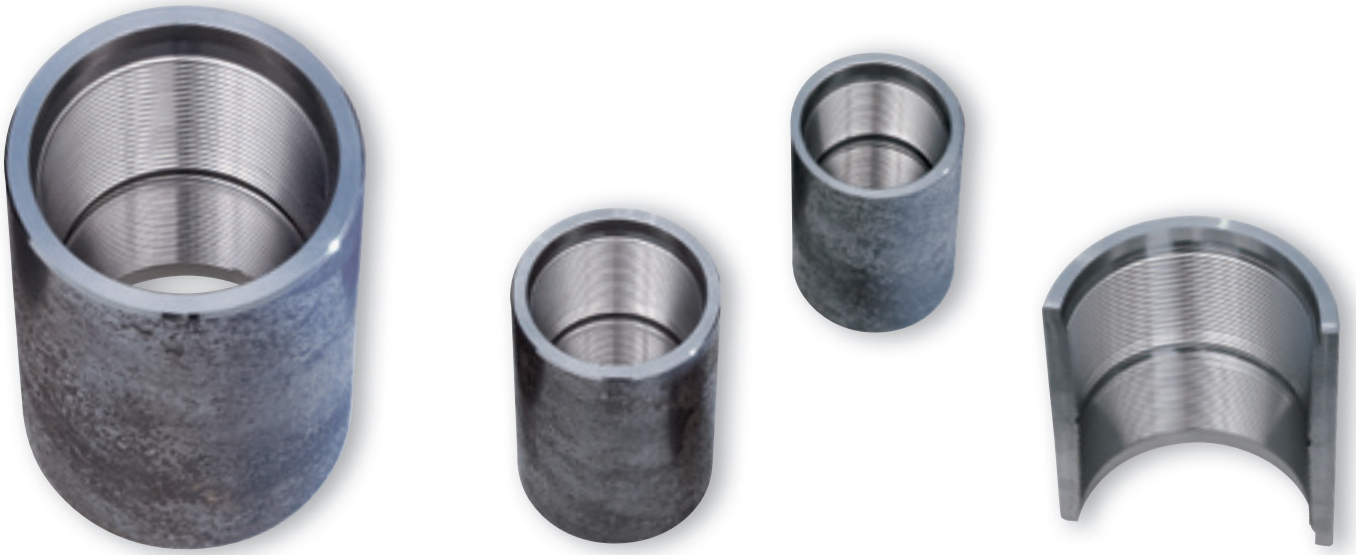
The VL series integrates turning and automation in a single machine – in the smallest of spaces. It is characterized by high productivity, extremely high long-term accuracy, very high operational reliability and good operability.

VL stands for short travel distances and high accelerations – ideal for the complete machining of couplings for every threaded connection according to the API and GOST standard.

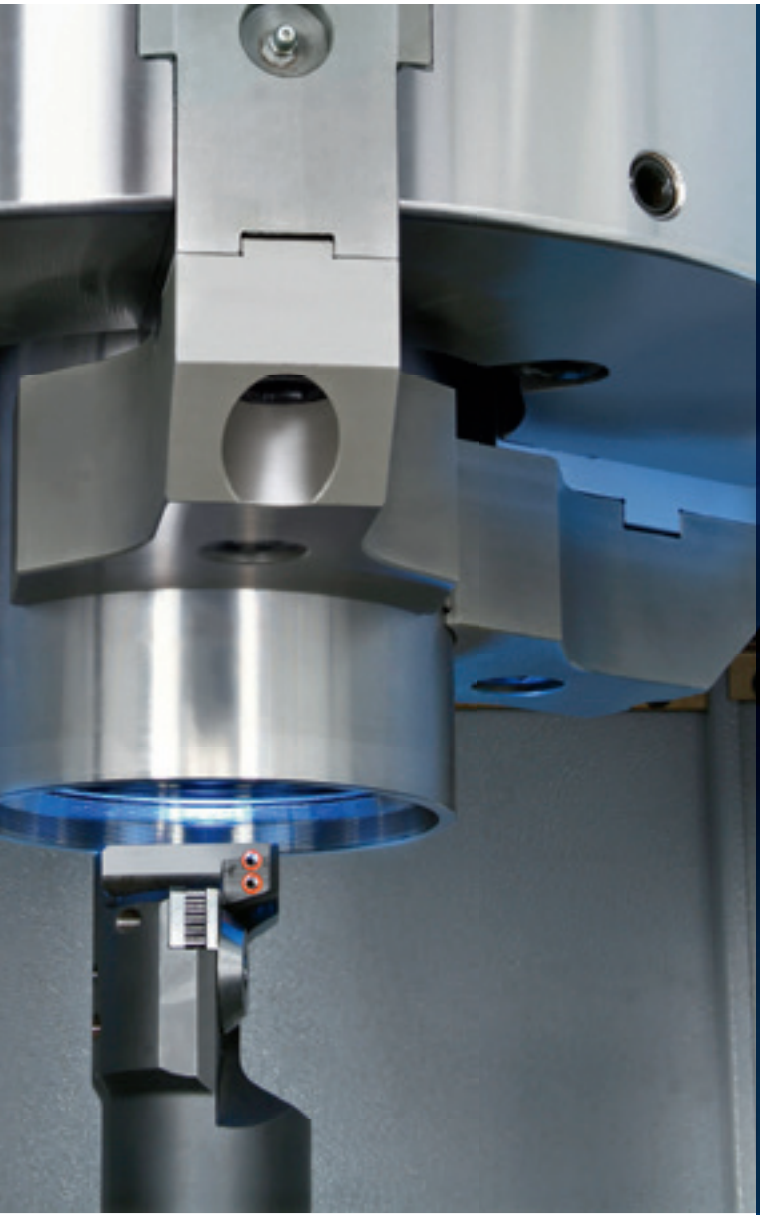
THE ADVANTAGES

System with two machines offers all the advantages of complete machining of couplings:

+ Integrated automation, low capital investment
+ Automatic tool change in the shortest possible time
+ Short distances for machining and loading, and therefore the shortest possible cycle times per piece
+ High availability
+ Ideal chip flow
+ Very short chip-to-chip time
+ Low space requirement
+ Base body made of Mineralit® for longer tool life
+ More than 8,000 vertical turning centers delivered by EMAG



PRODUCTION OF COUPLING



TECHNICAL DATA

		VL 6	VL 8
Nominal diameter	inch	$2^{3/8}$ – 4	$4^{1/2}$ – 7
Coupling external dia., max.	mm inch	125 5	200 8
Chuck diameter	mm inch	315 12.5	400 15.5
Swing diameter	mm inch	420 16.5	520 20.5
Coupling length, max.	mm inch	160 6.5	260 10
X/Y (optional)/Z axis travel	mm inch	900/± 30/495 35.5/± 1/19.5	1.010/± 30/595 43.5/± 1/23.5
Main spindle			
» Power 40%/100%	kW hp	39/28 52/38	47,6/34,6 63,8/46,4
» Torque 40%/100%	Nm ft-lb	460/340 339/251	826/600 609/443
» Speed, max.	1/min	3,100	2,850
Turret			
» Turret tool storage	Qty	12	12
Rapid traverse speed X/Y/Z	m/min ipm	60/15/30 2,363/591/1,181	60/15/30 2,363/591/1,181

Each VL is a manufacturing cell with integrated loading and unloading. A conveyor belt transports the parts to the pick-up station next to the work area. This allows finished parts to be safely removed from the front of the machine at any time and raw parts to be placed on it.

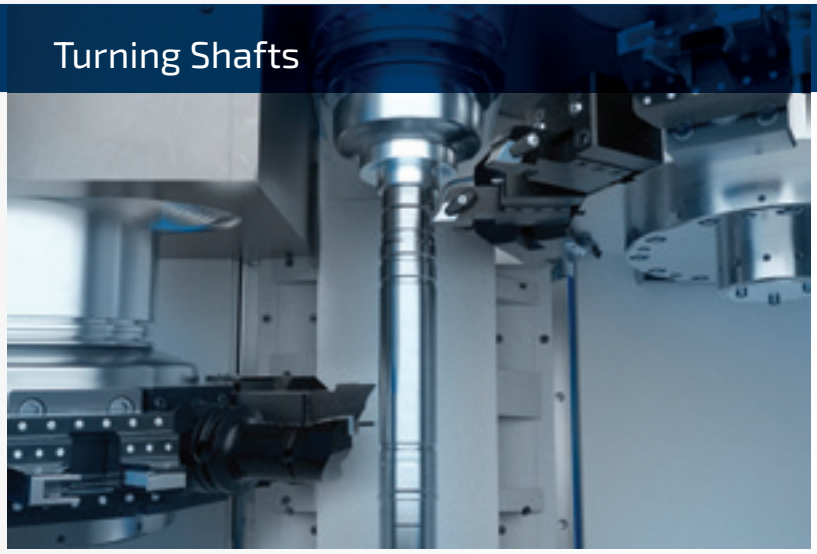
COUPLING SIZES

VL 6: 2 3/8" – 4"

API/GOST THREAD CONNECTION

VL 8: 4 1/2" – 7"

TECHNOLOGY. CONNECTED.



Milling

Gear Hobbing

rinding

ECM/PECM

Laser Processing

At Home All Over The World.

All EMAG Locations

EMAG

www.emag.com