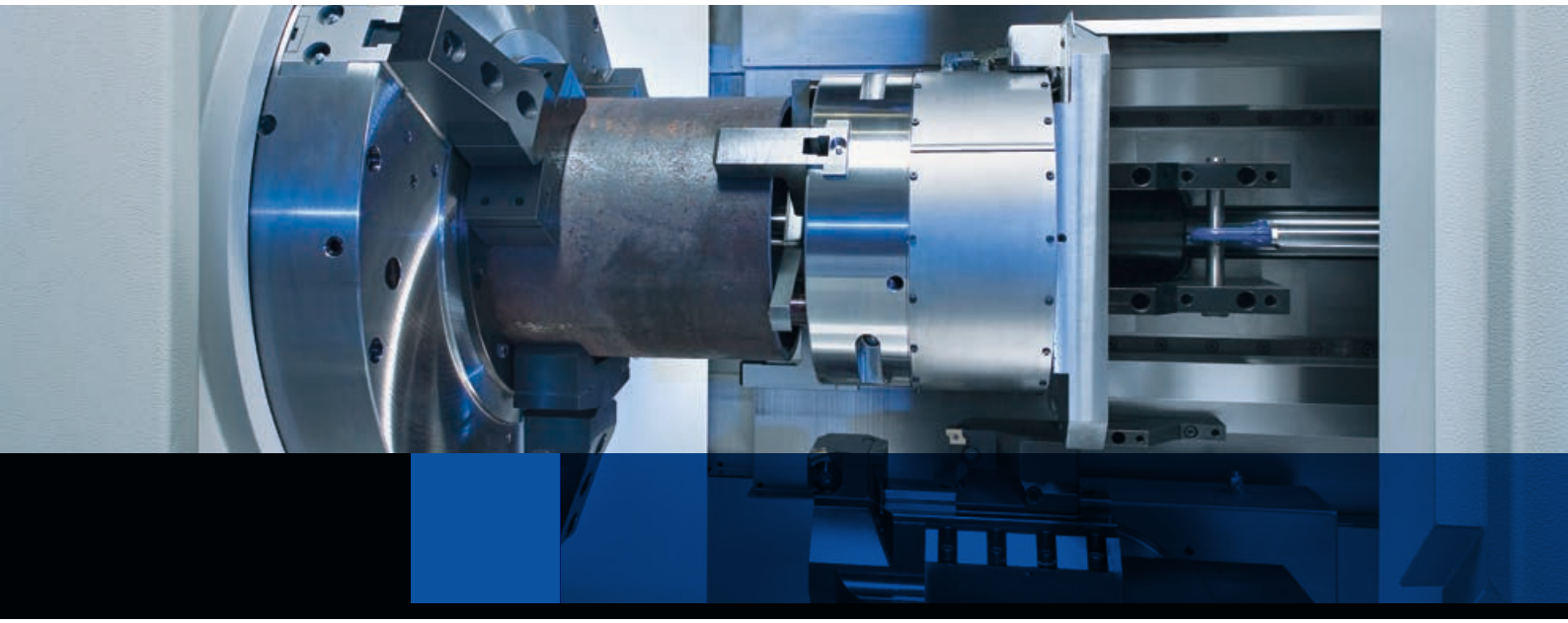
Oil Field Technology and Vehicular Hydraulics

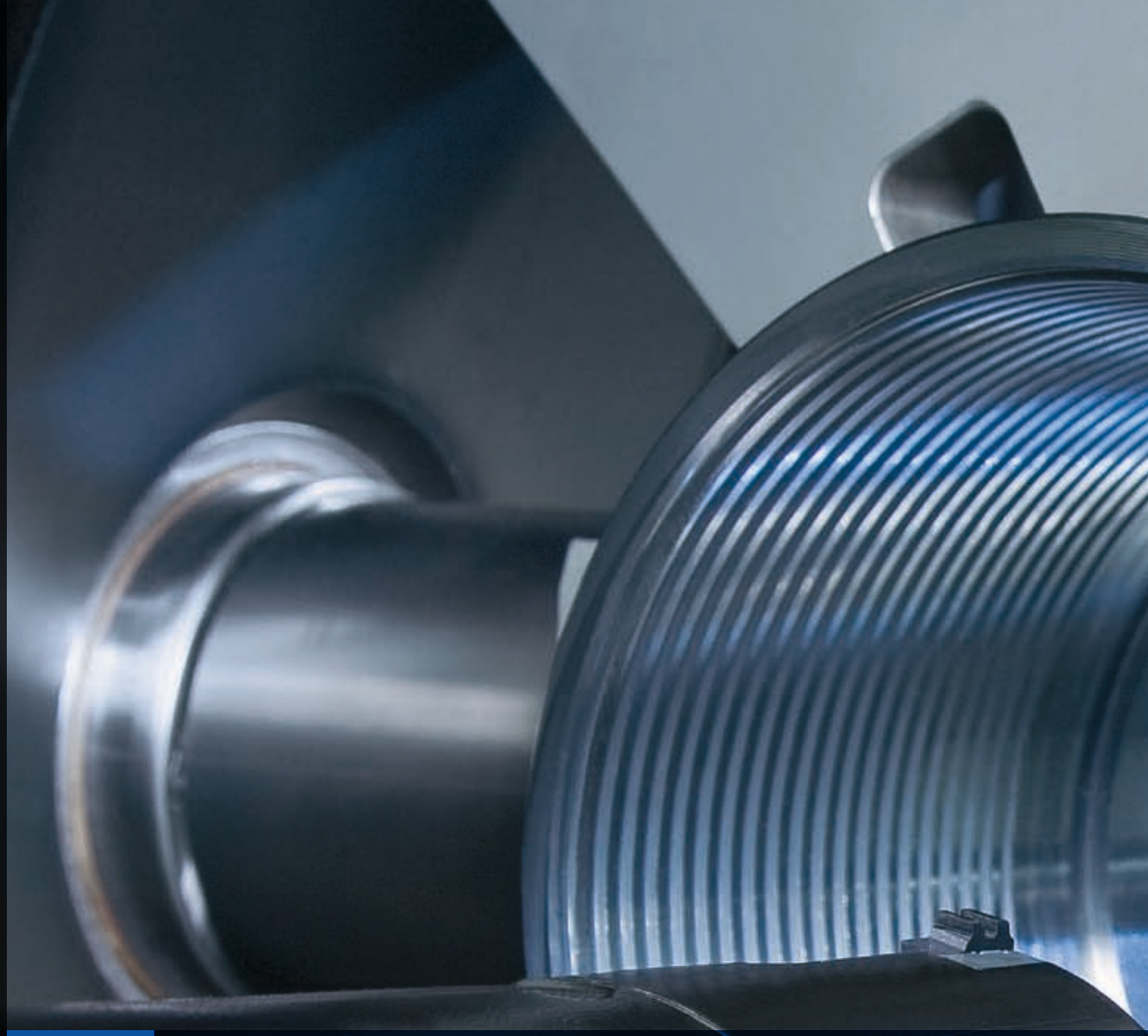
USC 11 / 21

USC 27



EMAG

The machine series USC 11 / 21 for tube end machining and the centre-drive lathe USC 27 for the machining of coupling sleeves and tool joints offer tailor-made solutions for the machining of all types of thread.
In fact, these state-of-the-art machine tools are capable of machining all the threads on OCTG components, whether they are of international (API, GOST) or of a proprietary standard.



U S C

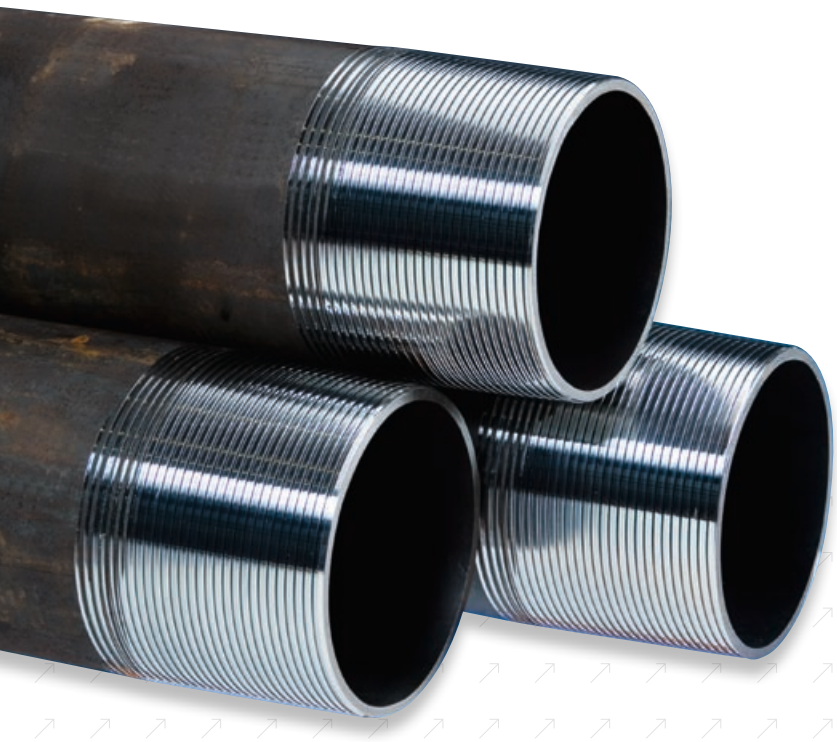
TUBE AND COUPLING SLEEVE MACHINING CENTERS

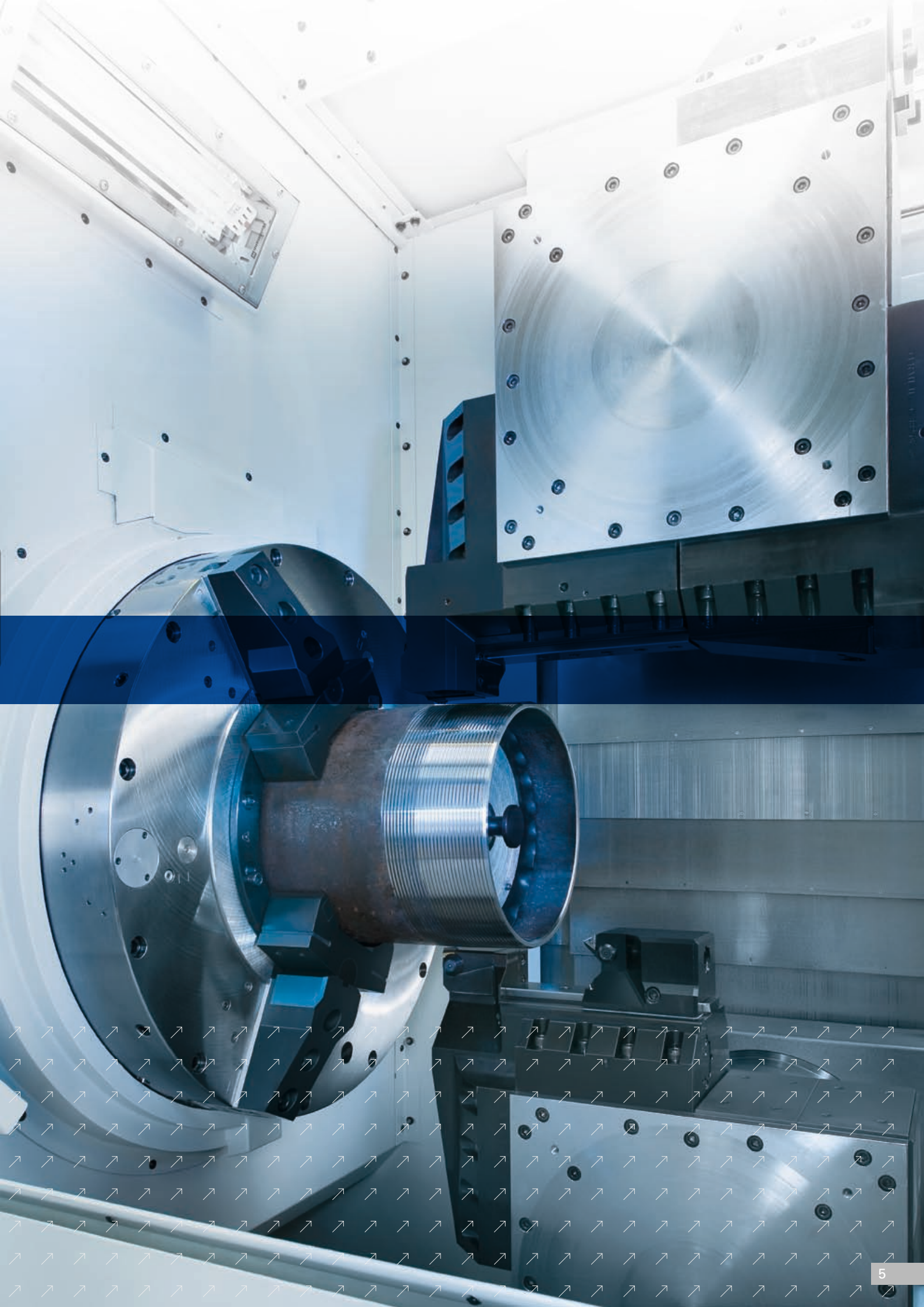
USC 11 / 21 –
the machine concept for the flexible machining of tube ends.

The USC series' most distinctive feature is its rigid machine construction. All machine modules are mechanically very stable. This is down to the machine base in MINERALIT® (polymer granite). External as well as all internal machining operations can be carried out on a single machine. This concept makes the USC ideal for the complete-machining of all common threads to API and GOST standards, as well as all proprietary threads.

The main drive of the tube machining center forms an integral part of the spindle unit and guarantees high power and torque ratings. The direct drive consists of a highly dynamic, frequency-controlled, maintenance-free AC asynchronous spindle motor.
The tubes are safely clamped in pneumatically, hydraulically or mechanically operated front- and rear-end chucks.

U S C 1 1
U S C 2 1





Two of the latest generation of flat-bed turrets, both travelling on compound slides, ensure that the machining operations are of the highest precision. Each turret features 4 tool stations that can be equipped with a variety of tooling systems. The change holders in the turret accommodate external and internal turning tools. The vertical design of the machine base and a generously dimensioned chip conveyor guarantee unimpeded chip flow.

- External and internal tube diameters are aligned with the aid of a centring device with self-centring chuck.
- During machining, the inside of the tube is sealed against the ingress of chips and coolant.
- Fixed or detachable damping mandrels for the machining of thin-walled tubes are available as options.

USC 11
USC 21

Machining of tubes on USC 11 / 21.

	USC 11	**USC 21**	**USC 21**
	190	290	450
Nominal diameter	2 3/8" - 7"	4 ½" - 10 ¾"	5 ½" - 16"

The coupling sleeve machining center USC 27.

The centre drive machine USC 27 stands for efficiency. It impresses by its capability to simultaneously complete-machine both sides of coupling sleeves and tool joints with international threads like API and GOST or threads of proprietary standard.
The USC 27's machine base too is made of the high-quality polymer granite MINERALIT®, a material of outstanding damping quality.

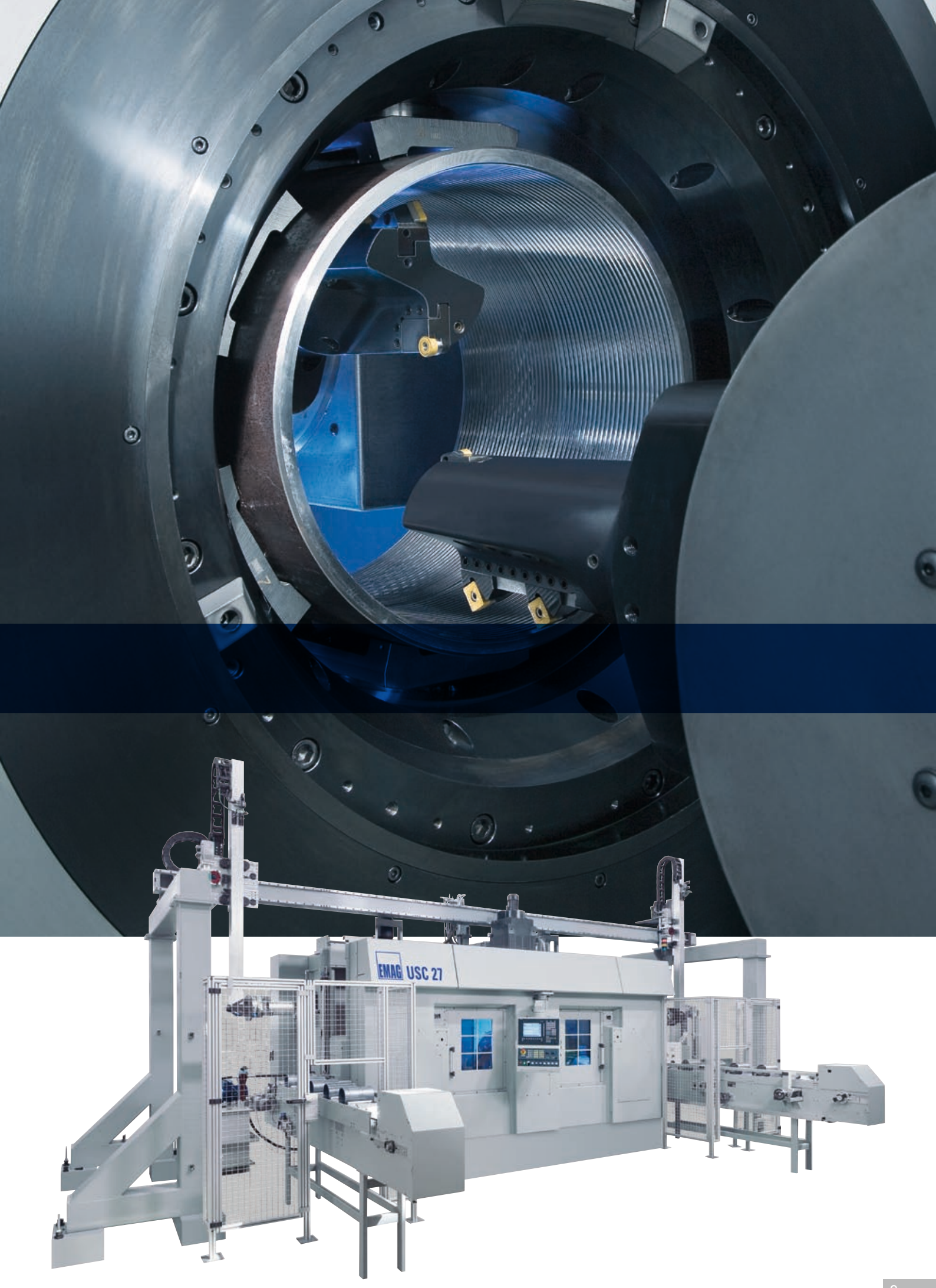
The EMAG 4-station flat-bed turrets are mounted on the cross slides to the right and left of the centre drive headstock. The high rapid traverse speeds of the cross slides and the automatic work-handling system reduce idle times to a minimum. Rapid-reaction, frequency-controlled, maintenance-free AC motors and high-precision ground ball screws control the movement of the cross slides on the linear guideways.

USC 27

The centre drive headstock with integral clamping system features three centrically clamping and three compensatory internal jaws. It is also possible to program a clamping pressure adjustment during machining. The main drive consists of a highly dynamic, frequency-controlled, maintenance-free AC asynchronous spindle motor flanged to the spindle unit. Power is transmitted by a gearbox.

Machining of coupling sleeves and tool joints on USC 27.

	USC 27 290	**USC 27** 380
Nominal diameter	4 ½" - 9 ⅝"	5 ½" - 13 ⅜"


EMAG USC 27

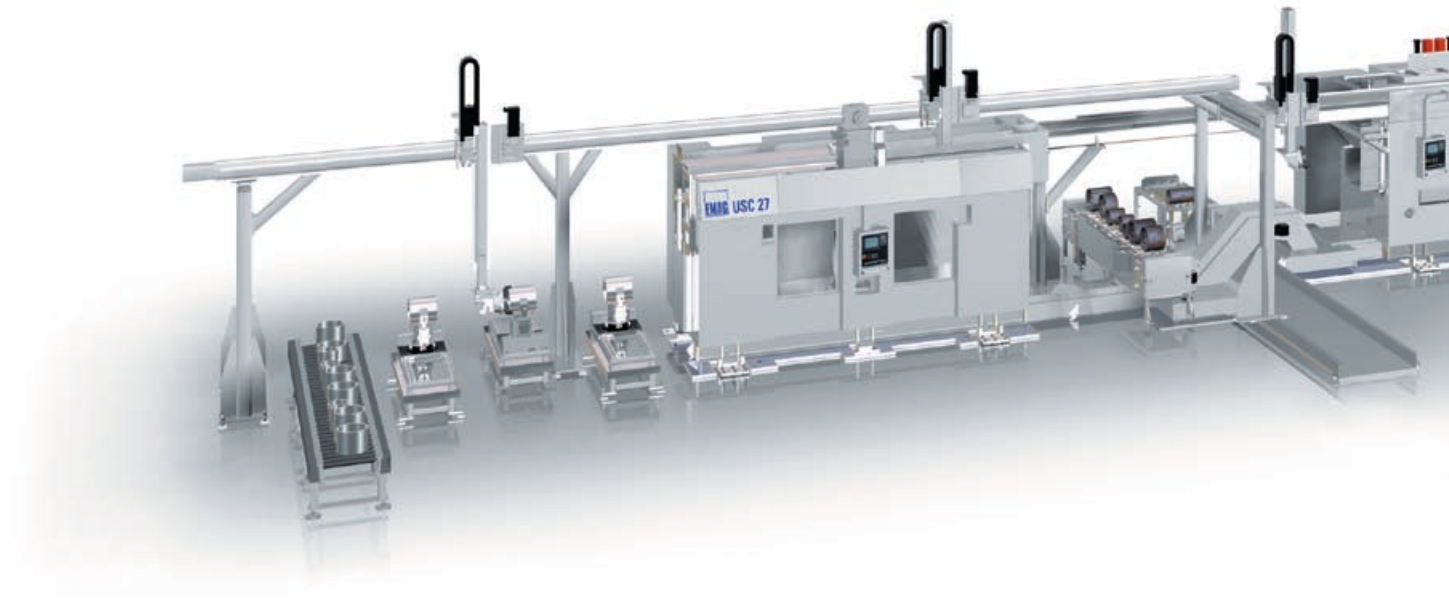
Automated coupling sleeve production line with USC 21 and USC 27.

With its USC 21s and USC 27s EMAG offers complete systems for the manufacture of coupling sleeves:

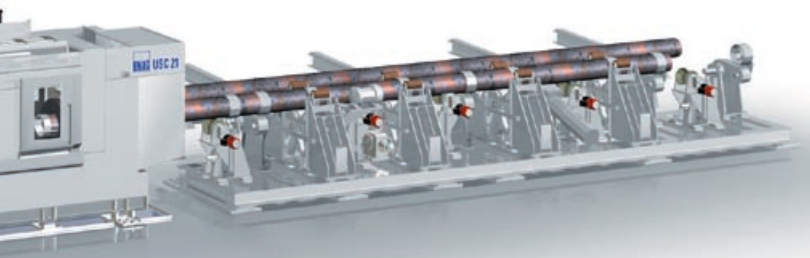
- Turnkey solutions, i.e. all technology, automation and production processes from a single source
- Only one contact point for the customer - centralised project management
- Faster start-up through optimised interfacing
- Maintenance-friendly, with the same components used on all machines (e.g. control systems)
- Optimised overall process, where manufacturing systems and peripherals are an optimal match

The advantage over systems containing sawing machines is the saving made on saw blades. On EMAG production lines the coupling sleeves are parted off with tool inserts that are inexpensive and easy to change. As the first turning operation is carried out during the first cycle (pre-machining), the machining time on the coupling sleeve machine can be reduced. The coupling sleeve

USC 21 + USC 27



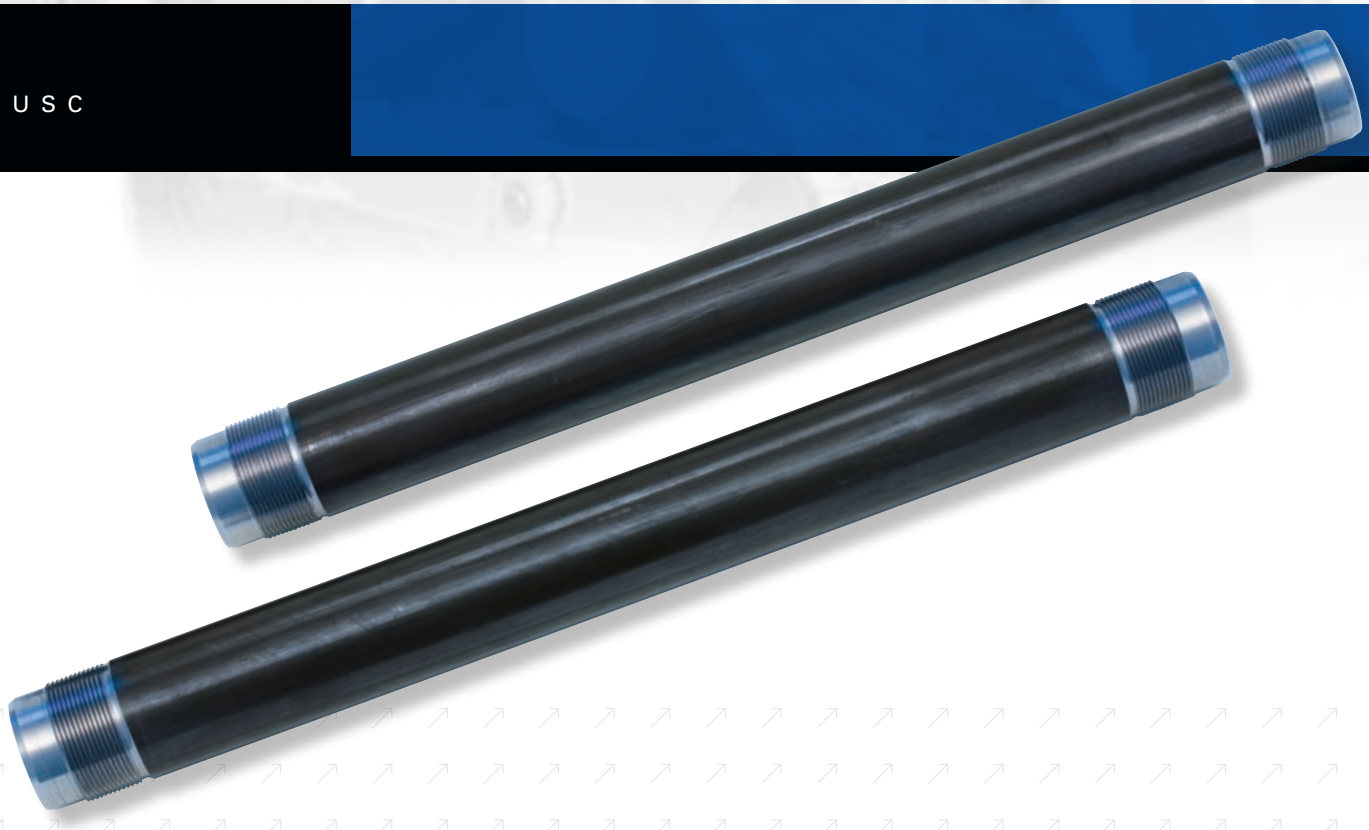
machine is in this case used exclusively for the quality-sensitive finish-machining operations: face turning, rough turning of the inside and thread cutting. This results in a reduction of the throughput time of 30 to 50%, depending on the type of sleeve and the threading requirements.



Machining of coupling sleeves with a nominal diameter of 5 1/5" to 13 3/8" on a USC 21 and a USC 27.

Components for vehicular hydraulics made on USC machines.

The tried and tested USC 11 and USC 21 concept is ideal for the machining - with little setting effort and at the highest quality and productivity levels - of hydraulic cylinders and pistons with diameters of 20 to 130 mm, lengths of 500 to 5000 mm, and a minimum batch size of 1.
The highly flexible workhandling equipment is designed to order and can be fully automated. Transport and clamping systems adjust to the dimensions of the workpiece, without having to be reset.



Machines and complete manufacturing systems from a single source.

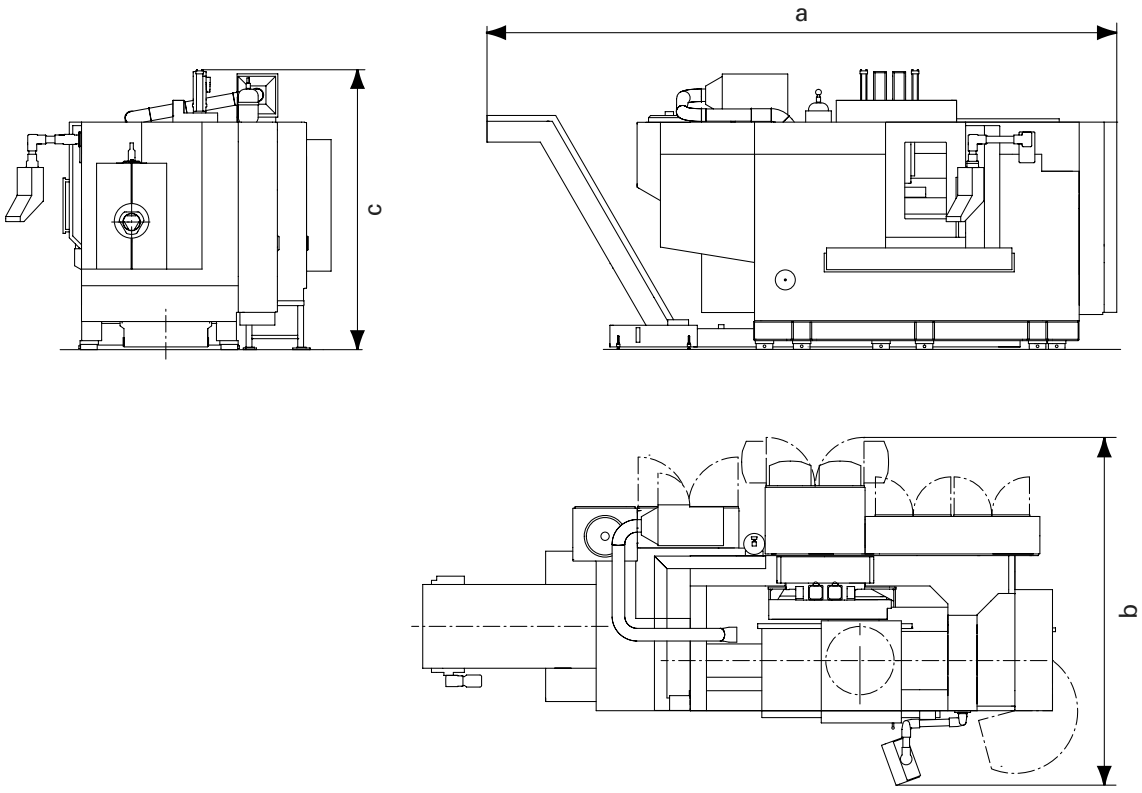
EMAG can look back on many years of experience in the machining of oil field components (Oil Country Tubular Goods - OCTG).
Nowadays, production plants (finishing lines) for the machining of tubes, coupling sleeves, tool joints and caps cover a multitude of manufacturing processes. Besides CNC threading machines the machinery includes automatic mandrel testing stations, magnetic crack detectors, coupling sleeve assembly lines, thread protection and nipple assembly points, automatic test presses, coating plants, length meters, weighing stations, embossing stations, band markers, tube bundling facilities and - last but by no means least - the component monitoring system. The experience gained with the worldwide supply and commissioning of over 30 tube machining systems and over 200 coupling sleeve machining systems speaks for itself.

Technical data.

Capacity		USC 11 190	USC 21 290	USC 21 450
Chuck diameter, max.	mm	200	300	460
Clamping range	inch	2 3/8 - 7	4 1/2 - 10 3/4	5 1/2 - 16
X-axis travel	mm	250	350	350
Z-axis travel	mm	300	600	600
Centre height	mm	1,450	1,550	1,550
Main spindle				
Spindle bore	mm	190	290	450
Spindle speed, max.	rpm	1,600	1,300	900
Spindle speed with chuck, max.	rpm	1,600	1,300	900
Main drive				
AC motor S1 (at 100% duty cycle)	kW	76	120	120
Full power at speed of	rpm	500	430	230
Torque S1 (at 100% duty cycle)	Nm	1,450	2,665	4,980
Feed drive				
Rapid traverse speed in X	m/min	38	30	30
Rapid traverse speed in Z	m/min	38	30	30
Ball screw dia. in X and Z	mm	40	50	50
Positioning accuracy in X and Z, under	mm	0.02	0.02	0.02
Max. power at 100% in X and Z	kW	5.8	5.8	5.8
Feed force at 100%	kN	10	10	10
Torque at 100% in X and Z	Nm	18.5	18.5	18.5
Flat-bed turret				
Quantity		2	2	2
Size, width across flats	mm	460	460	460
Electrical equipment				
Operating voltage	approx. V	380 - 460	380 - 460	380 - 460
Control voltage - DC	approx. V	24	24	24
Control voltage - AC	approx. V	230	230	230
Frequency	approx. Hz	50 / 60	50 / 60	50 / 60
Total installed power	approx. kVA	130	230	300
Nominal power	approx. kVA	105	160	160
Lead fuse	approx. A	200	500	500
Electrics to VDE 0113				

Weights and measurements		USC 11 190	USC 21 290	USC 21 450
Length a	mm	6,320	7,420	7,420
Width b	mm	3,700	4,190	4,190
Height c	approx. mm	3,100	3,400	3,400
Weight	approx. kg	25,000	32,000	34,000

Floor plan USC 11 / 21



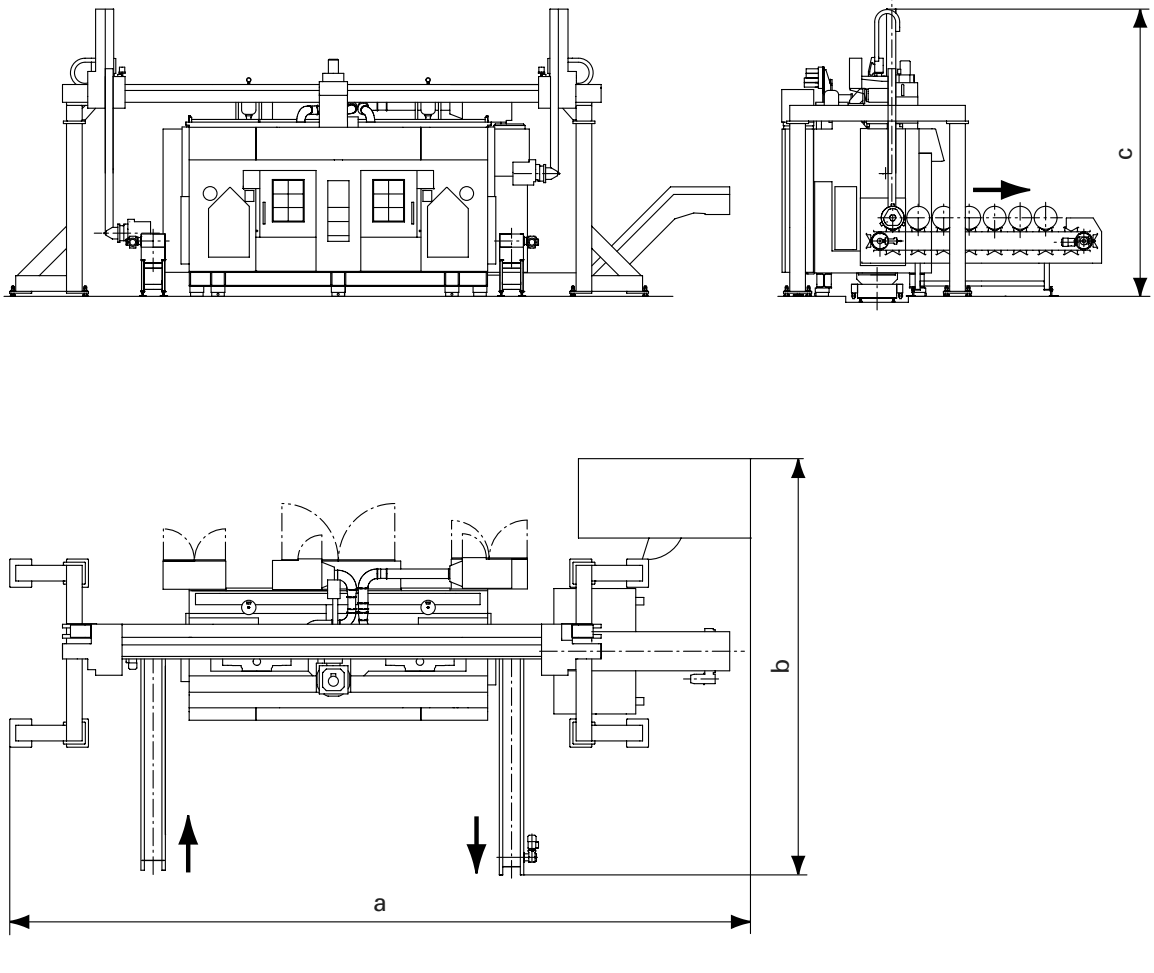
Subject to change without prior notice

Technical data.

Capacity		USC 27 290	USC 27 380
Chuck diameter, max.	mm	380	450
Clamping range	inch	4 1/2 - 9 5/8	5 1/2 - 13 3/8
X-axis travel	mm	300	300
Z-axis travel	mm	800	800
Centre height	mm	1,168	1,168
Main spindle			
Spindle bore	mm	380	450
Bearing speed, max.	rpm	800	500
Main drive			
AC motor S1 (at 100% duty cycle)	kW	130	130
Full power at speed of	rpm	273	167
Torque, max.	Nm	4,500	7,400
Feed drive			
Rapid traverse speed in X	m/min	30	30
Rapid traverse speed in Z	m/min	30	30
Ball screw dia. in X and Z	mm	50	50
Positioning accuracy in X and Z, under	mm	0.02	0.02
Max. power at 100% in X and Z	kW	7	7
Feed force at 100%	kN	14	14
Torque at 100% in X and Z	Nm	22	22
Flat-bed turret			
Quantity		2	2
Size, width across flats	mm	510	510
Electrical equipment			
Operating voltage	approx. V	380 - 460	380 - 460
Control voltage - DC	approx. V	24	24
Control voltage - AC	approx. V	230	230
Frequency	approx. Hz	50 / 60	50 / 60
Total installed power	approx. kVA	230	210
Nominal power	approx. kVA	160	150
Lead fuse	approx. A	500	500
Electrics to VDE 0113			

Weights and measurements		USC 27 290	USC 27 380
Length a	mm	11,820	11,820
Width b	mm	6,800	6,800
Height c	approx. mm	4,580	4,580
Weight	approx. kg	29,000	29,000

Floor plan USC 27



Subject to change without prior notice

At home in the world.

EMAG
Gruppen-Vertriebs- und Service GmbH

Salach
Austrasse 24
73084 Salach
Germany
Phone: +49 (0)7162 17 0
Fax: +49 (0)7162 17 820
E-mail: info@salach.emag.com

Frankfurt
Orber Strasse 8
60386 Frankfurt/Main
Germany
Phone: +49 (0)69 40802 0
Fax: +49 (0)69 40802 412
E-mail: info@frankfurt.emag.com

Köln
Robert-Perthel-Strasse 79
50739 Köln
Germany
Phone: +49 (0)221 126152 0
Fax: +49 (0)221 126152 19
E-mail: info@koeln.emag.com

Leipzig
Pittlerstrasse 26
04159 Leipzig
Germany
Phone: +49 (0)341 4666 0
Fax: +49 (0)341 4666 114
E-mail: info@leipzig.emag.com

München
Zamdorferstrasse 100
81677 München
Germany
Phone: +49 (0)89 99886 250
Fax: +49 (0)89 99886 160
E-mail: info@muenchen.emag.com

Österreich
Glaneckerweg 1
5400 Hallein
Austria
Phone: +43 (0)6245 76023 0
Fax: +43 (0)6245 76023 20
E-mail: info@austria.emag.com

WORLDWIDE

NODIER EMAG INDUSTRIE S.A.
Service commercial Unital:
38, rue André Lebourblanc - B.P. 26
78592 Noisy le Roi Cedex
France
Phone: +33 1 30 80 47 70
Fax: +33 1 30 80 47 69
E-mail: info@nodier.emag.com

EMAG MAQUINAS HERRAMIENTA S.L.
Pasaje Arrahona, No.18
Centro Industrial Santiga
08210 Barberá del Vallés (Barcelona)
Spain
Phone: +34 93 719 5080
Fax: +34 93 729 7107
E-mail: info@emh.emag.com

ZETA EMAG Srl
Viale Longarone 41/A
20080 Zibido S.Giacomo (MI)
Italy
Phone: +39 02 905942 1
Fax: +39 02 905942 21
E-mail: info@zeta.emag.com

EMAG (UK) Ltd.
Chestnut House,
Kingswood Business Park
Holyhead Road
Albrighton
Wolverhampton WV7 3AU
Great Britain
Phone: +44 1902 376090
Fax: +44 1902 376091
E-mail: info@uk.emag.com

KP-EMAG
ul. Butlerova 17
117342 Moscow
Russia
Phone: +07 495 3302574
Fax: +07 495 3302574
E-mail: info@kp.emag.com

EMAG L.L.C. USA
38800 Grand River Avenue
Farmington Hills, MI 48335,
USA
Phone: +1 248 477 7440
Fax: +1 248 477 7784
E-mail: info@usa.emag.com

EMAG MEXICO
Colina de la Umbria 10
53140 Boulevares
Naucalpan Edo. de Mèxico
Mexico
Phone: +52 55 5 3742665
Fax: +52 55 5 3742664
E-mail: info@mexico.emag.com

EMAG DO BRASIL Ltda.
Rua Schilling, 413
Vila Leopoldina
05302-001 São Paulo
SP, Brazil
Phone: +55 (0)11 3837 0145
Fax: +55 (0)11 3837 0145
E-mail: info@brasil.emag.com

Dänemark
Horsvangen 31
7120 Vejle Ø
Denmark
Phone: +45 75 854 854
Fax: +45 75 816 276
E-mail: info@daenemark.emag.com

Schweden
Glasgatan 19B
73130 Köping
Sweden
Phone: +46 (0)221 40305
E-mail: info@sweden.emag.com

Polen
Spółka Z Ograniczoną
Odpowiedziàlnością
Oddzial w Polsce
Miodowa 14
00-246 Warsaw
Poland
Phone: +48 (0)22 53 10 500
Fax: +48 (0)71 31 37 359

Belarus
ul. Timirjazeva, 65 B, Pom. 78 (K.1101)
220035 G. Minsk
Belarus
Phone: +375 296 205 100
Fax: +375 17 254 77 30
E-mail: info@emag.by

EMAG Machine Tools (Taicang) Co., Ltd.
Room 2315 B, Far East International Plaza
No. 317 Xianxia Road
200051 Shanghai,
P.R. China
Phone: +86 21 62 35 15 20
Fax: +86 21 62 35 01 18
E-mail: info@china.emag.com

EMAG INDIA Private Limited
#12, 12th Main Street, 17th Cross
Malleswaram
Bangalore - 560 055,
India
Phone: +91 80 2344 7498
Fax: +91 80 2344 7498
E-mail: info@india.emag.com

EMAG KOREA Ltd.
Rm204, Biz center,
SKn Technopark, 190-1,
Sangdaewon-dong,
Joongwon-gu, Seongnam City,
Gyeonggi-do, 462-721,
South Korea
Phone: +82 31 776 4415
Fax: +82 31 776 4419
E-mail: info@korea.emag.com

TAKAMAZ EMAG Ltd.
1-8 Asahigaoka Hakusan-City
Ishikawa Japan, 924-0004
Japan
Phone: +81 76 274 1409
Fax: +81 76 274 8530
E-mail: info@takamaz.emag.com

EMAG SOUTH AFRICA
P.O. Box 2900
Kempton Park 1620
Rep. South Africa
Phone: +27 11 3935070
Fax: +27 11 3935064
E-mail: info@southafrica.emag.com

Subject to technical changes.

Contact us. Now.

215-1-GB/02.2010 · Printed in Germany ·

www.emag.com

EMAG