

TECHNICAL SPECIFICATION

Concept TURN 105

PC-controlled CNC – table lathe
with interchangeable control



Control software

SINUMERIK OPERATE
SIEMENS 810D/840D
SIEMENS 810/820
GE FANUC Series 21
GE FANUC Series 0
FAGOR 8055 TC
EMCOTRONIC TM02
EMCO EASY CYCLE
EMCO CAMCONCEPT

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Technical data of the machine

Working area		
Center height	[mm]	90
Distance between centers (spindle nose – live center)	[mm]	236
Swing over bed	[mm]	∅ 180
Swing over cross slide	[mm]	∅ 75
Max. size of workpiece for chuck parts with tailstock	[mm]	∅ 75 x 121
Travel		
Travel in X-axis	[mm]	55
Travel in Z-axis	[mm]	172
Main spindle		
Range of spindle speed (stepless)	[rpm]	150 - 4000
Max.torque (60% duty cycle)	[Nm]	14
Spindle nose accord. to factory standard		
Bearing, front bearing diameter	Taper roller bearing, ∅ 45	
Spindle bore	[mm]	∅ 20,5
Hole through manual chuck	[mm]	∅ 18
Main drive		
AC motor, power	[kW]	1,9
Tool system		
Tool turret without directional logic		
Number of tools alternatively inside/outside		8
Height and width of shank for outside tools	[mm]	12 x 12
Bore for inside tools	[mm]	∅ 16
Switch time (T1/T2/T3 = 45°/180°/315°)	[s]	1,4/3,5/5,5
Feed drive		
3 phase step motor with a resolution of	[mm]	0,0015
Rapid traverse in X/Z	[m/min]	5
Feed rate in X/Z (stepless)	[m/min]	0-5
Max. feed force	[N]	2000
Positioning variation P _s according VDI 3441 in X/Z	[mm]	0,005/0,005
Tailstock (integrated live center)		
Quill stroke	[mm]	120
Quill diameter	[mm]	∅ 35
Coolant equipment (option)		
Tank volume	[l]	35
Max. coolant velocity	[l/min]	15
Max. coolant pressure	[bar]	0,5

Pneumatic unit (option)		
Pneumatic unit for automation accessories: Automatic door, pneumatic chuck and parts catcher Supply pressure	[bar]	6
Air hose connection	[mm]	ø 10
Compressed air quality	cleanliness class 4 (ISO 8573-1)	
Lubrication system		
Guideways and feed spindle nuts	Automatic oil central lubrication	
Main spindle bearing	lifetime grease lubrication	
Automatic clamping devices (option)		
Solid clamping cylinder with pneumatic 3-jaw power chuck including stroke control and blow-out unit		
Spindle bore	[mm]	ø 20,5
Chuck diameter	[mm]	85
Machine base for machine (option)		
Total length x total depth x total height	[mm]	1135x1100x800
Weight	[kg]	ca. 120
Automatic door (option)		
Automatic door (pneumatic), incl.stroke control		
Painting		
light gray	RAL Nr. 7035	
traffic red	RAL Nr. 3020	
graphite gray	RAL Nr. 7024	
Electrical connection		
Voltage supply	[V]	230 ~1/N/PE
Admissible voltage fluctuation	[%]	+10/-10
Frequency	[Hz]	50/60
Connection value of the machine	[kVA]	2,3
Main fuse	[A]	16
Dimensions/weight		
Height of rotation axis above ground	[mm]	267
Total height	[mm]	1030
Total length and total depth	[mm]	1135 x 1100
Total weight of the machine (without machine base)	[kg]	350
Machine acceptance		
Accord. Din 8615, part 1		
Safety rules		
Acc. EEC-/ CE EN292 part 1/2, EN60204 part1 EEC machine guiding rules appendix 1		

Technical data of the PC-control system

Control system with PC and control keyboard (option)

Interchangeable control-specific keyboard (not contained in delivery)

Separate PC with 14" VGA-colour display (not contained in delivery)



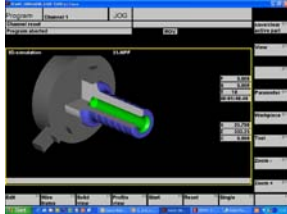
PC-minimum configuration

Processor	PC 1000 MHz
Operating system 32 bit / 64 bit	Windows XP-SP3/Vista/7
Random memory	256 MB RAM
Graphic card	min. 8MB VGA
Free Hard drive memory, ROM	400 MB
Hardware for programming stations	CD-ROM disc drive USB Interface
additional Hardware for machine license	USB Interface / Network card (TCP/IP able)

Machine license:

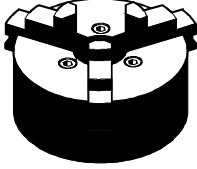
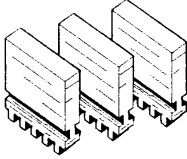
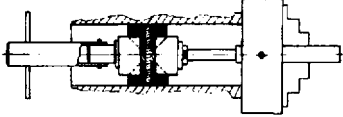
For the direct control of the CONCEPT machine tools and includes machine specific datas. Each machine license is specially done for each CONCEPT machine.

Basic machine

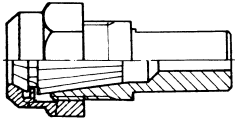


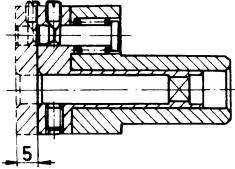
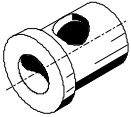
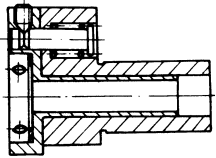
	DESCRIPTION	REF.NO.
 <p>ATTENTION: PC and control keyboard are not included in basic machine!</p>	<p>EMCO Concept TURN 105</p> <p>PC – controlled CNC table lathe</p> <p>Machine complete with fully enclosed working area, safety units acc. to CE-regulations, 8-station tool turret, manual tailstock, central lubrication, machine lamp, electrical and mechanical preparation for automation, tool-set for operation.</p>	<p>A7F 000</p>
	<p>Software (32bit and 64bit)</p> <p>WinNC–control software, machine license. In case of order please indicate type of control required:</p> <p>SINUMERIK OPERATE SIEMENS 810/820 SIEMENS 810D/840D GE FANUC Series 0 GE FANUC Series21 EMCOTRONIC TM02 EMCO EASY CYCLE FAGOR 8055 TC</p> <p>EMCO CamConcept (32bit and 64bit) machine license</p> <p>CamConcept contains the NC-Format DIN/ISO. For translation to other CNC codes postprocessors are available optional:</p> <p>Single licenses: Postprocessor for WinNC Sinumerik 840D Postprocessor for WinNC Fanuc21 Postprocessor for WinNC Sinumerik 810/820 Postprocessor for WinNC Fanuc0 Postprocessor for WinNC Emcotronic TM02</p>	<p>X3Y 400 X5A C00 X3Y 200 X5A C50 X3Y 300 X5A E00 X3B 000 X3A 300</p> <p>X3A 400</p> <p>X5A 460 X5A 461 X5A 462 X5A 463 X5A 465</p>
	<p>EMCO Win 3D-View, turning (32bit and 64bit)</p> <p>3D-graphic simulation Option for WinNC</p>	<p>X5A 250</p>

	DESCRIPTION	REF.NO.
	<p><u>Control keyboard – basic case</u></p> <p>Incl. connection cable RS 232</p>	<p>X9B 000</p>
	<p><u>TFT- Display</u></p> <p>incl. display cable, power supply and attaching parts</p> <p>Main cable VDE Main cable BSI Main cable UL</p>	<p>X9Z 600</p> <p>A4Z 010 A4Z 030 A4Z 050</p>
	<p><u>Control keyboard – key module</u></p> <p>SINUMERIK OPERATE SIEMENS 810 SIEMENS 820 SIEMENS 810D/840D GE FANUC Series 0 GE FANUC Series 21 EMCOTRONIC TM02 PAL FAGOR 8055 TC</p>	<p>X9Z 060 X9Z 010N X9Z 020N X9Z 040N X9Z 110N X9Z 130N X9Z 210N X9Z 510N X9Z 050N</p>

Clamping devices for workpieces

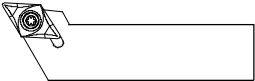
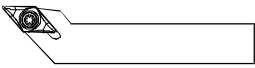

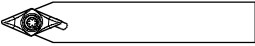


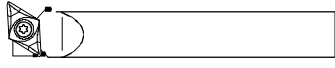
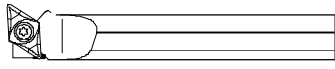
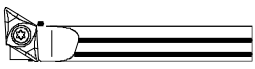
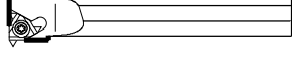

	DESCRIPTION	REF.NO.
	<p><u>3-jaw lathe chuck</u></p> <p>Chuck diameter $\varnothing 82$ mm incl. 1 set of inside/outside graduated hard jaws</p>	<p>V4W 186R</p>
	<p><u>Clamping jaws</u></p> <p>Jaws for V4W 186R 1 set of toothed soft jaws</p>	<p>V0W 013R</p>
	<p><u>Hollow spindle stopper</u></p> <p>Quickly adjustable, Rauscher type 1 Not for pneumatic chuck!</p>	<p>271 015</p>




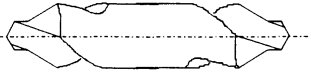
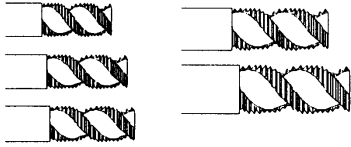
Toolholders










	DESCRIPTION	REF.NO.
	<p><u>Tool holder package CT105</u> consisting of: collet holder ESX16 - 2x Set of tap holders - 1x Set of reduction sleeves - 2x Set of collets ESX16 - 1x Die holder → 20 -1x</p>	A7Z 860
	<p><u>Collet holder</u> With clamping nut for collets type ESX 16</p>	A7Z 760
	<p><u>Collets</u> Set of 12 collets Type of collet ESX 16 Diameter 1-10 mm</p>	152 700
	<p><u>Collets (individual)</u> Type ESX 16 ø 1 mm ø 1,5 mm ø 2 mm ø 2,5 mm ø 3 mm ø 4 mm ø 5 mm ø 6 mm ø 7 mm ø 8 mm ø 9 mm ø 10 mm</p>	152 710 152 715 152 720 152 725 152 730 152 740 152 750 152 760 152 770 152 780 152 790 152 800
	<p><u>Tap holder</u> 4 pcs. tap holders with length compensation for taps M3, M4, M5, M6, M8, M10 and 6 pcs. reduction sleeves for the core diameter twist drills</p>	A7Z 280
	<p><u>Reduction sleeves</u> 12 pcs., ø2 – 12 mm for twist drills ø 2, 3, 4, 5, 6, 7, 8, 9, 3x10, 12</p>	A7Z 270
	<p><u>Die holder</u> Diameter 16mm, for threads M2 - M2,5 Diameter 20mm, for threads M3 - M6</p>	A7Z 700 A7Z 710

Tools

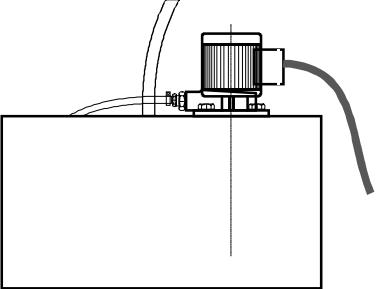

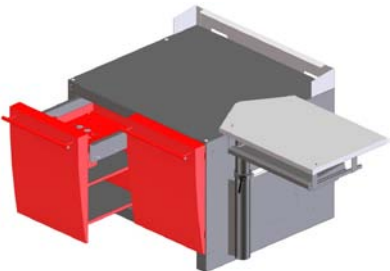


	DESCRIPTION	REF.NO.
	<p><u>Tool Package "Basic"</u> with</p> <p>1 # 260 628 Twist Drills 6 pcs. 1 # 271 050 Copying Tool Left 1 # 271 056 Inserts for Alu 1 # 271 060 Copying Tool Neutral 1 # 271 070 Copying Tool Right 1 # 271 080 Parting Off Tool 1 # 271 085 Inserts For Parting-Off Tool 1 # 271 110 OD-Thread Tool Right 1 # 271 115 Inserts For 271 110 1 # 271 116 Inserts For OD-Thread Tool 1 # 271 220 Centre Drill A8, DIN 333 1 # 771 120 Drills For Core Holes 5 pcs. 1 # 781 301 Screw Tap M3 1 # 781 302 Screw Tap M4 1 # 781 303 Screw Tap M5 1 # 781 304 Screw Tap M6 1 # 781 305 Screw Tap M8 1 # A7Z 270 Reduction Sleeves 12 pcs. 1 # A7Z 280 Tap Holder 4 pcs.</p>	<p>A7Z 910</p>
	<p><u>Tool Package "Extended"</u> with</p> <p>1 # 260 626 Inserts For ID-Threading, Right 1 # 260 627 ID-Threading Tool Right 1 # 271 040 Roughing Tool Left 1 # 271 046 Inserts for Alu 1 # 271 050 Copying Tool Left 1 # 271 056 Inserts for Alu 1 # 271 060 Copying Tool Neutral 1 # 271 070 Copying Tool Right 1 # 271 080 Parting Off Tool 1 # 271 085 Inserts For Parting-Off Tool 1 # 271 110 OD-Thread Tool Right 1 # 271 115 Inserts For 271 110 1 # 271 116 Inserts For OD-Thread Tool 1 # 271 120 Roughing Bore Bar Holder 1 # 271 130 Boring Bar Holder D 16x100mm 1 # 271 140 Boring Bar Holder D 10x100mm 1 # 271 180 ID-Thread Tool Right 1 # 271 185 Inserts For 271180 1 # 271 220 Centre Drill A8, DIN 333 1 # 771 120 Twist Drills For Core Holes 5 # 1 # 781 280 Twist Drills 25 pcs.</p>	<p>A7Z 920</p>

	<p>1 # 781 301 Screw Tap M3 1 # 781 302 Screw Tap M4 1 # 781 303 Screw Tap M5 1 # 781 304 Screw Tap M6 1 # 781 305 Screw Tap M8 1 # A7Z 860 Tool Holder Package CT105</p>	
	<p><u>Roughing tool left</u> No. PCLNC K12 T</p>	271 040
	<p><u>Copying tool left</u> No. SDJCL 1212 D07</p>	271 050
	<p><u>Copying tool right</u> No. SDJCR 1212 D07</p>	271 070
	<p><u>Copying tool neutral</u> No. SDNCN 1212 D07</p>	271 060
	<p><u>OD-thread tool left</u> No. NL 12-3 LH</p>	271 100
	<p><u>Parting off tool</u> No. L150.15.15.1212-3/M0</p>	271 080
	<p><u>Roughing bore bar holder</u> No. S16H SCLCL 09 ø16 x 100 mm</p>	271 120
	<p><u>Boring bar holder</u> No. S16H SDUCL 07 ø16 x 100 mm</p>	271 130
	<p><u>Boring bar holder</u> No. S10D SDUCL 07 ø10 x 60 mm</p>	271 140
	<p><u>ID-thread tool right</u> No. NVR 10-2 RH ø10 x 60 mm for inside threads 0,5-1,5 mm</p>	260 627
	<p><u>ID-thread tool right</u> Nr. NVR 16-3 RH ø16 x 100 mm for inside threads 1,75-3 mm</p>	271 180

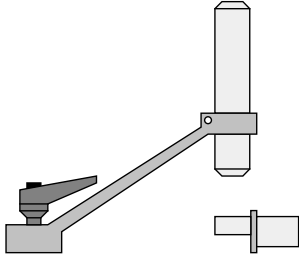
	DESCRIPTION	REF.NO.
	<p><u>Drills, HSS</u></p> <p>25 twist drills \varnothing1-13mm (0.5 mm graduated) 9 twist drills \varnothing2-10 mm (1 mm graduated)</p>	<p>781 280 260 628</p>
	<p><u>Twist drills for core holes, HSS</u></p> <p>5 core hole drills \varnothing2.5, 3.3, 4.2, 5.0, 6.8 mm 6 core hole drills \varnothing2.5 - 8.5 mm</p>	<p>771 120 271 230</p>
	<p><u>Twist drills, HSS</u></p> <p>\varnothing12 mm, extra short accord. DIN 1897 \varnothing16 mm, extra short accord. DIN 1897</p>	<p>271 200 271 210</p>
	<p><u>Centre drill, HSS</u></p> <p>\varnothing6,8 mm A8, DIN 333</p>	<p>573 770 271 220</p>
	<p><u>Screw taps, HSS DIN 352</u></p> <p>6 screw taps M3 - M10 in box</p> <p>Screw tap M3 (shank \varnothing 3,5 mm) Screw tap M4 (shank \varnothing 4,5 mm) Screw tap M5 (shank \varnothing 6 mm) Screw tap M6 (shank \varnothing 6 mm) Screw tap M8 (shank \varnothing 6 mm) Screw tap M10 (shank \varnothing 7 mm)</p>	<p>781 310 781 301 781 302 781 303 781 304 781 305 781 306</p>

	DESCRIPTION	REF.NO.
	<u>Indexable inserts for steel</u> No. CCMT 09T304 EN Gm43 for: 271 040, 271 120 (10pcs.)	212 320
	<u>Indexable inserts for alu</u> No. CCGT 09T304 - 27 H10T for: 271 040, 271 120 (10pcs.)	271 046
	<u>Indexable inserts for steel</u> No. DCMT 070204 EN Gm25 for: 271 050, 271 060, 271 070, 271 130, 271 140 (10pcs.)	271 055
	<u>Indexable inserts for alu</u> No. DCGT 070204-27 H10T for: 271 050, 271 060, 271 070, 271 130, 271 140 (10pcs.)	271 056
	<u>Indexable inserts for parting off tool, 3mm</u> FX 3.1N0.15-M1 Sr127 for: 271 080 (5pcs.)	271 085
	<u>Indexable inserts for OD-thread tool, right</u> pitch 0,5 - 1,5 mm No. 16ER T A60° S36T for: 271 110 (5pcs.)	271 115
	<u>Indexable inserts for OD-thread tool, right</u> pitch 1,75 - 3 mm No. 16ER T A60° S36T for: 271 110 (5pcs.)	271 116
	<u>Indexable inserts for ID-thread tool, right</u> pitch 0,5 - 1,5 mm No. 11IR T A60° S36T for: 260 627 (5pcs.)	260 626
	<u>Indexable inserts for ID-thread tool, right</u> pitch 1,75 - 3 mm No. 16IR T A60° S36T for: 271 180 (5pcs.)	271 185

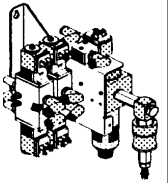
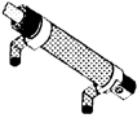
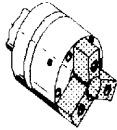

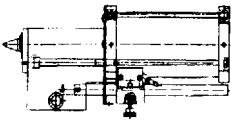
Accessories

	DESCRIPTION	REF.NO.
	<p><u>Coolant equipment</u></p> <p>Coolant equipment with 35l tank and a coolant pump capacity of 15 l/min</p> <p>!!Requires additional pallet for shipping!!</p>	<p>A7Z 360</p>
	<p><u>Levelling element</u></p> <p>4 pcs. required, when using a machine base</p>	<p>F3Z 150</p>
	<p><u>Machine base</u></p> <p>Base including: drawer for tools and other devices, deposit for PC-tower and coolant equipment. WxDxH 1135x1100x800 mm Basic machine not mounted on machine base, when delivered.</p> <p><u>Swivel table</u></p> <p>Deposit for monitor and control keyboard. With drawer for PC-keyboard. Height adjustment with gas-pressure-spring from 720 to 970 mm. Swivelling range +/- 30°. Installation on both sides possible. Installation left: Extension lead for monitor, keyboard and mouse necessary! WxD 845x550 mm. Table area 700x550 mm</p>	<p>A7Z 210</p> <p>A7Z 430</p>
	<p><u>Minimum- lubrication unit</u></p> <p>Container volume 500ml 2 oil volume regulators 2 nozzles with flexible hose Pressured air connection 4bar with regulator and pressure gauge Level display Coaxial supply hoses</p> <p>Pneumatic unit necessary !! Factory installed only !!</p>	<p>F1Z 400</p>
	<p><u>Electronic handwheel</u></p> <p>For moving the machine's axes manually to proceed zero point- and tool offsets</p> <p>Retrofit able by EMCO technician !! Possible with ACC-Hardware V2 and higher!!</p>	<p>Q1Z 340</p>

Setting tools

	DESCRIPTION	REF.NO.
	<p><u>Optical tool presetting device</u></p> <p>For registration of tool datas in X- and Z-direction</p>	<p>A7Z 610</p>

Accessories for automation

	DESCRIPTION	REF.NO.
	<p><u>Pneumatic unit</u></p> <p>Prepared for connection of automatic door, pneumatic chuck, pneumatic tailstock and blow out unit for pneumatic chuck.</p> <p>Factory installed only !!</p>	<p>A8Z 550</p>
	<p><u>Automatic door</u></p> <p>Incl. stroke control</p> <p>Pneumatic unit necessary !! Factory installed only !!</p>	<p>A7Z 330</p>
	<p><u>Power clamping chuck diam. 85</u></p> <p>Röhm clamping chuck KFD 85, without bore, including 1 set of basic and soft top jaws</p> <p>Requires ref.no. A8Z 550 and A7Z 370.</p>	<p>A7Z 350</p>
	<p><u>Soft jaws</u></p> <p>For pneumatic chuck A7Z 350</p>	<p>A7Z 250</p>
	<p><u>Automatic tailstock</u></p> <p>Incl. stroke control</p> <p>Factory installed only !!</p>	<p>A7Z 340</p>

	DESCRIPTION	REF.NO.
	<p><u>Solid clamping cylinder</u></p> <p>Air – solid clamping cylinder Röhms LVS 85</p> <p>Factory installed only !!</p>	A7Z 370
	<p><u>Pneumatic clamping device</u></p> <p>For collets 140 E, 22 DIN 6343, with 1 set of collets (diam. 6,8,10,12,14,15,16 mm) and draw bar for partial hollow clamping (max. 200 mm).</p> <p>Requires ref.no. A8Z 550 and A7Z 370.</p>	271 240

Assembling of accessories for automation only ex works – **NO RETROFITTING POSSIBLE !**

	<p><u>Robotik-Interface Hardware</u></p> <p>Is required for the FMS/CIM – operation. (X1A 000 required)</p> <p>Retrofit able by EMCO technician !!</p>	A8Z 530
	<p><u>Robotik-Interface Software</u></p> <p>Is required for the FMS/CIM – operation. (A8Z 530 required)</p>	X1A 000
	<p><u>DNC-Interface</u></p> <p>Enables the tele-operation of the control (WinNC) by a software-protocol. The communication is made by a RS 232 interface.</p> <p>Not available for FAGOR 8055 TC !</p>	X5A 050


Manuals

	DESCRIPTION	REF.NO.
	<p><u>Manual Concept Turn 105</u></p>	DE 1105 EN 1105 FR 1105 SP 1105 TA 1105 HL 1105
	<p><u>Programming instruction</u></p> <p>WinNC for SINUMERIK OPERATE</p> <p>WinNC SIEMENS 810/820-T</p>	DE 1849 EN 1849 DE 1804 EN 1804 FR 1804 SP 1804 TA 1804

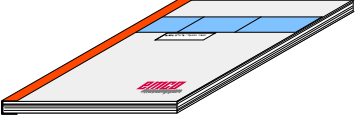
Subject to technical modifications.

		HL 1804
	WinNC SIEMENS 810D/840D-T	DE 1815 EN 1815 FR 1815 SP 1815 TA 1815 HL 1815
	WinNC GE FANUC Series 0-T	DE 1802 EN 1802 FR 1802 SP 1802 HL 1802 TA 1802
	WinNC GE FANUC Series 21-T	DE 1902 EN 1902 FR 1902 SP 1902 HL 1902 TA 1902
	WinNC EMCOTRONIC T02	DE 1805 EN 1805 FR 1805 HL 1805 SP 1805 TA 1805
	WinNC FAGOR 8055 TC	DE1819 EN 1819 FR 1819 SP 1819 HL 1809 TA 1819
	EMCO CAMCONCEPT – turning	DE 1829 EN 1829 FR 1829 HL 1829 SP 1829 TA 1829
	EMCO EASY CYCLE	DE 1839 EN 1839 HL 1839 TA 1839 FR 1839 SP 1839 CZ 1839
	EMCO Win3D-View - turning	DE 1827 EN 1827 FR 1827 HL 1827 SP 1827 TA 1827

Courseware

	DESCRIPTION	REF.NO.
	<p><u>E[MCO] Campus</u></p> <p>E-Learning 2.0 for machining. Multimedia teaching and learning materials for CNC training.</p> <p><i>E[MCO] Campus -</i></p> <p>is a multimedia training program that teaches all the basics of modern CNC technology. The cleverly-designed teaching format makes even complex concepts easy to grasp and learn. Interactive dialog features allow students to progress at their own pace. Views are displayed using attractive 2 and 3D graphics, animations, and videos, sustainably improving the success of the learning process.</p> <p><u>Languages:</u> German English Czech Spanish Chinese</p> <p>Single-user license Multi-user license 20 Multi-user license 50 Multi-user license 100</p> <p>The Software is working without any time restriction, a renewal of the version is not necessary. A Software Maintenance Contract (SMC) is not available right now.</p>	<p></p> <p>X2Y 400 X2Y 410 X2Y 420 X2Y 430</p>

Catalogues

	DESCRIPTION	REF.NO.
	<u>EMCONOMY moves</u>	DE 2801 EN 2801 FR 2801 SP 2801 RU 2801 CZ 2801
	<u>CONCEPT TURN 105</u>	DE 4522 EN 4522 TA 4522 SP 4522
	<u>EMCO Industrial Training</u>	DE 1837 EN 1837 TA 1837 SP 1837

Packing

	DESCRIPTION	REF.NO.
	<p><u>Climate packing</u></p> <p>Has to be used <u>each</u> for the machine and the machine base.</p> <p>Pallet, Alu-bandage, various accessories</p>	ZVP 547 120
	<p><u>Seaworthy packing</u> (as option to European- and Climate packing)</p> <p>Has to be used <u>each</u> for the machine and the machine base.</p> <p>Wooden box 124,5x120x115 cm</p> <p>requires seaworthy packing ZVP 547120!</p>	ZVP 301 124
	Options to european packing for machine base:	
	<p><u>Climate packing</u></p> <p>Pallet, Alu-bandage, various accessories</p>	ZVP 547 120
	<p><u>Seaworthy packing</u> (as option to European- and Climate packing)</p> <p>requires seaworthy packing ZVP 547120!</p>	ZVP 301 124