

TECHNICAL SPECIFICATION

Concept TURN 105

PC-controlled CNC – table lathe
with interchangeable control



Control software

**SINUMERIK OPERATE 840D sl / 828D
FANUC Series 31i
FAGOR 8055 TC
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 / over cross slide	[mm]	∅ 180 / ∅ 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]	∅ 10
Compressed air quality (acc. DIN ISO 8573-1)		cleanliness class 4

Subject to technical modifications.

Lubrication system		
Guideways and feed spindle nuts		Autom. oil central lubrication
Main spindle bearing		lifetimegrease 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 no. 7035
traffic red		RAL no. 3020
graphite gray		RAL no. 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		

PC Control

The machine is controlled by a standard PC.
The PC is provided by the customer.

Machine license

Does the direct control of the CONCEPT Machines and includes machine specific data.
For every CONCEPT machine a new machine license is to be produced.

Input possibilities

- EMCO Easy2Operate (Option)
Panel for machine functions and onscreen display of the control keyboard (Easy2Control is included)
- PC keyboard and mouse
possible, but not recommended

PC system requirements

Processor	PC Dual Core 2GHz	
Operating system	Windows 7 or higher (32 bit or 64 bit)	
Working memory	4 GB RAM	
Monitor	16:9 Full HD 1920x1080 (only for easy2control / easy2operate)	
Free hard disk memory	2 GB	
Interfaces	easy2control:	1x USB for Dongle
	easy2operate:	2x USB for Dongle + machine keyboard
	Machine connection	1x LAN (cable) – only for machine licence
	optional:	LAN or WLAN for network connection

Description EMCO Easy2control



EMCO Easy2control is a software visualizing the control- and machine-specific keyboards of the WinNC-controls on a 16:9 Full-HD screen.

The diverse operation fields for machine, control and short-cuts can be switched by tabs.

e.g.:



The buttons and regulation keys can be operated by the mouse.

When using a Full-HD-Touchscreen, you can operate these buttons and keys with this screen.

For operating the Software on the programming station (without machine), you need a license dongle. For every work station an Easy2Control single license must be acquired. There is no multiple license.

Monitor requirements

16:9 Full-HD monitor with min. 1920 x 1080 pixel

For operating the machines CT 60, CM 55, CT 105 und CM 105, Easy2Operate is required.


Description EMCO Easy2Operate

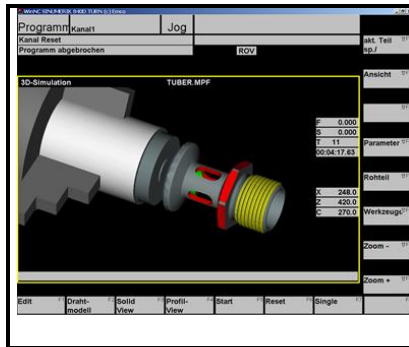
Easy2Operate is used to operate the machines CT 60, CM 55, CT 105 und CM 105.

Easy2Operate consists of Easy2Control (incl.dongle) + panel



Basic machine

 <p>ATTENTION: PC and control keyboard are not included in basic machine!</p>	<p>EMCO Concept TURN 105</p> <p>PC-controlled slant-bed lathe for the CNC basic training with interchangeable control unit.</p> <p>Machine complete with fully enclosed working area, safety units acc. to CE-regulations, stepless adjustable main drive, 8-station tool turret, automatic referencing, manual tailstock, central lubrication, machine lamp, electrical and mechanical preparation for automation, tool-set for operation, connection cable for machine to PC, , disk with machine data, tool-set for operation, operation manual with spare part list. Possibility for Remote monitoring, comfort package EasyCycle hardware</p>	<p>A7F 000</p>
	<p>WinNC Machine License</p> <p>Operating the machine. Works only with connected machine.</p> <p>SINUMERIK OPERATE 840D sl / 828D</p> <p>FANUC Series 31i</p> <p>FAGOR 8055 TC</p> <p>Former versions ... will be produced only for justified cases. Anyhow the technical preconditions have to be considered because old Windows versions could be requested.</p>	<p>X3Y 400</p> <p>X3Y 360</p> <p>X3A 300</p> <p>On request</p>
	<p>EMCO CAMCONCEPT, machine license</p> <p>For CAD/CAM Programming and direct operation of PC controlled CNC machines.</p> <p>Only for: PC and Concept Turn 55/60 + Mill 55 PC and Concept Turn 105 + Mill 105</p>	<p>X3A 400</p>

**EMCO Win 3D-View, Turning**

3D graphic simulation
Option for all WinNC

EMCO Win 3D-View, Turning, single and machine
license

Not necessary for CAMCONCEPT!

X5A 250

**Easy2Operate**

Portable machine operating panel to operate the
machine via hardware, includes axis buttons, feed
override switch, mode switch etc. inclusive
Easy2control single license with dongle

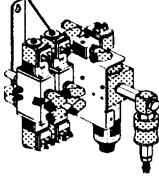
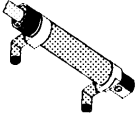
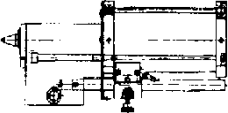
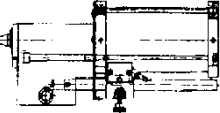
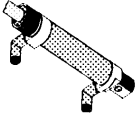
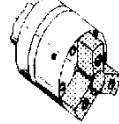

Preferrable to operate CT60, CM55, CT105 and
CM105

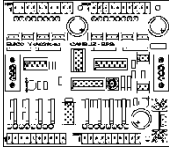


X9C E2C

Accessories

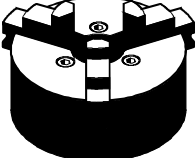
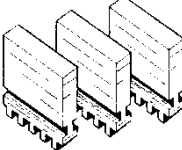
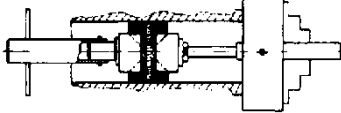

	<p>Machine base</p> <p>Base including: drawer for tools and other devices, deposit for PC-tower. WxDxH 1035x1100x800 mm.</p> <p>Cover sheet for machine base Only for ConceptTurn 60 and ConceptMill 55</p> <p>Swivel table Deposit for monitor and control keyboard. With drawer for PC-keyboard. Height adjustment 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>A6Z 670</p> <p>A7Z 430</p>
	<p>Levelling element</p> <p>4 pieces required, when using with machine base</p>	<p>F3Z 150</p>
	<p>Coolant equipment</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 361</p>
	<p>Electronic handwheel</p> <p>For moving the machine's axes manually to proceed zero point- and tool offsets</p> <p>Possible with ACC-Hardware V2 and higher!!</p> <p>Retrofit able by EMCO technician !!</p>	<p>Q1Z 340</p>
	<p>Minimum- lubrication unit</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 A8Z 560 necessary !!</p> <p>Factory installed only !!</p>	<p>F1Z 400</p>

Accessories for automation

	<p>Pneumatic unit</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 560</p>
	<p>Automatic door</p> <p>Incl. stroke control</p> <p>Pneumatic unit A8Z 560 necessary!!</p> <p>Factory installed only!!</p>	<p>A7Z 330</p>
	<p>Automatic tailstock</p> <p>Incl. stroke control</p> <p>Factory installed only!!</p>	<p>A7Z 340</p>
	<p>Solid clamping cylinder</p> <p>Air – solid clamping cylinder Röhm LVS 85</p> <p>Factory installed only!!</p>	<p>A7Z 370</p>
	<p>Pneumatic clamping device</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 560 and A7Z 370.</p>	<p>271 240</p>
	<p>Power clamping chuck diam. 85</p> <p>Röhm clamping chuck KFD 85, without bore, including 1 set of basic and soft top jaws</p> <p>Requires ref.no. A8Z 560 and A7Z 370.</p>	<p>A7Z 350</p>
	<p>Soft jaws</p> <p>For pneumatic chuck A7Z 350</p>	<p>A7Z 250</p>

	<p>Robotic Interface Hardware</p> <p>Is required for the FMS/CIM – operation. (X1A 000 required)</p> <p>Retrofit able by EMCO technician !!</p>	<p>A8Z 530</p>
	<p>Robotic Interface Necessary for FMS/CIM operation.</p> <p>Robotik-Interface Hardware or I/O extension board required!!</p>	<p>X1A 000</p>
	<p>DNC Interface Enables the remote control of WinNC via a software- protocol. The communication is done via TCP/IP interface</p> <p>Not available for Heidenhain TNC426/430 and Fagor 8055 MC</p>	<p>X5A 050</p>

Clamping devices for Work Pieces


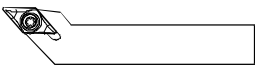

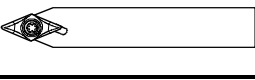
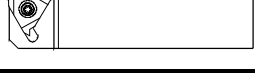
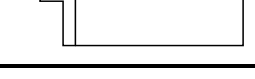
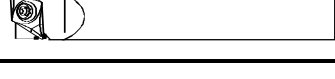
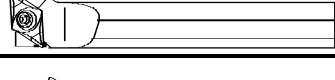
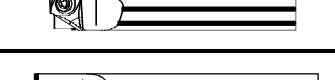
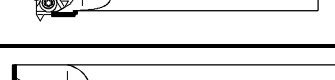




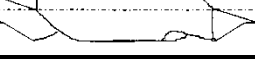
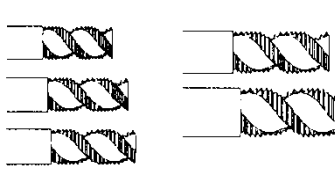
	<p>3-jaw lathe chuck</p> <p>Chuck diameter $\varnothing 82$ mm incl. 1 set of inside/outside graduated hard jaws</p>	<p>V4W 186R</p>
	<p>Clamping jaws</p> <p>Jaws for V4W 186R 1 set of toothed soft jaws</p>	<p>V0W 013R</p>
	<p>Hollow spindle stopper</p> <p>Quickly adjustable, Rauscher type 1 Not for pneumatic chuck!</p>	<p>271 015</p>
	<p>Quick actuating collet chuck</p> <p>For quick clamping and unclamping of the work piece with collets</p> <p>Includes 7 collets for diameter 6, 8, 10, 12, 14, 15 and 16 mm</p>	<p>271 005</p>










Toolholders

Tool holder package CT105 consisting of: 7 x A7Z 760 Collet holder ESX 16 1 x 153 810 Tapping collet M2 (shaft \varnothing 2,8 mm) 1 x 153 820 Tapping collet M3 (shaft \varnothing 3,5 mm) 1 x 153 830 Tapping collet M4 (shaft \varnothing 4,5 mm) 1 x 153 840 Tapping collet M5 - M8 (shaft \varnothing 6 mm) 2 x A7Z 270 Set of reduction sleeves 1 x 152 700 Set collets ESX 16 1 x A7Z710 Die holder \varnothing 20		A7Z 861
	Collet holder With clamping nut for collets type ESX 16 and tapping collets with length compensation	A7Z 760
	Set of Collets ESX 16 Set of 12 collets Collet type ESX 16 diameter 1-10 mm	152 700
	Collet (single) Type ESX 16 \varnothing 1 mm \varnothing 1,5 mm \varnothing 2 mm \varnothing 2,5 mm \varnothing 3 mm \varnothing 4 mm \varnothing 5 mm \varnothing 6 mm \varnothing 7 mm \varnothing 8 mm \varnothing 9 mm \varnothing 10 mm	152 710 152 715 152 720 152 725 152 730 152 740 152 750 152 760 152 770 152 780 152 790 152 800
	Tapping collets ER16 with length compensation For the support of screw taps. Tapping collet M2 (shaft \varnothing 2,8 mm) Tapping collet M3 (shaft \varnothing 3,5 mm) Tapping collet M4 (shaft \varnothing 4,5 mm) Tapping collet M5 - M8 (shaft \varnothing 6 mm)	153 810 153 820 153 830 153 840
	Reduction sleeves 12 pcs., \varnothing 2 – 12 mm for twist drills \varnothing 2, 3, 4, 5, 6, 7, 8, 9, 3x10, 12	A7Z 270
	Die holder Diameter 16mm, for threads M2 - M2,5 Diameter 20mm, for threads M3 - M6	A7Z 700 A7Z 710

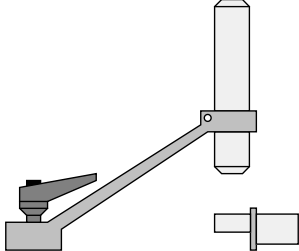
Tools

<p>Tool Package "Basic" with</p> <ul style="list-style-type: none"> 1x 260 628 Twist drill 6 pcs 1x 271 050 Copying tool left 1x 271 056 Inserts for Alu 1x 271 060 Copying tool neutral 1x 271 070 Copying tool right 1x 271 080 Parting off tool 1x 271 085 Inserts for parting off tool 1x 271 110 OD-Thread Tool Right 1x 271 115 Inserts For 271 110 1x 271 116 Inserts For OD-Thread Tool 1x 271 220 Centre Drill A8, DIN 333 1x 771 120 Drills For Core Holes 5 pcs. 1x 781 301 Screw Tap M3 1x 781 302 Screw Tap M4 1x 781 303 Screw Tap M5 1x 781 304 Screw Tap M6 1x 781 305 Screw Tap M8 1x A7Z 270 Reduction Sleeves 12 pcs. 4x A7Z 760 Collet holder 1x 153 820 Tapping collet M3 1x 153 830 Tapping collet M3 2x 153 840 Tapping collet M5-M8 	A7Z 911
<p>Tool Package "Extended" with</p> <ul style="list-style-type: none"> 1x 260 626 Inserts For ID-Threading, Right 1x 260 627 ID-Threading Tool Right 1x 271 040 Roughing Tool Left 1x 271 046 Inserts for Alu 1x 271 050 Copying Tool Left 1x 271 056 Inserts for Alu 1x 271 060 Copying Tool Neutral 1x 271 070 Copying Tool Right 1x 271 080 Parting Off Tool 1x 271 085 Inserts For Parting-Off Tool 1x 271 110 OD-Thread Tool Right 1x 271 115 Inserts For 271 110 1x 271 116 Inserts For OD-Thread Tool 1x 271 120 Roughing Bore Bar Holder 1x 271 130 Boring Bar Holder D 16x100mm 1x 271 140 Boring Bar Holder D 10x100mm 1x 271 180 ID-Thread Tool Right 1x 271 185 Inserts For 271180 1x 271 220 Centre Drill A8, DIN 333 1x 771 120 Twist Drills For Core Holes 5 # 1x 781 280 Twist Drills 25 pcs. 1x 781 301 Screw Tap M3 1x 781 302 Screw Tap M4 1x 781 303 Screw Tap M5 1x 781 304 Screw Tap M6 1x 781 305 Screw Tap M8 1x A7Z 861 Tool Holder Package CT105 	A7Z 921

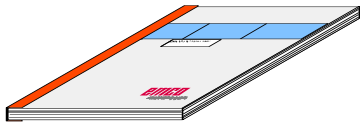
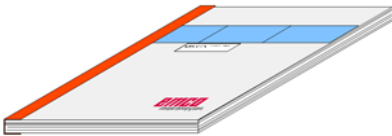
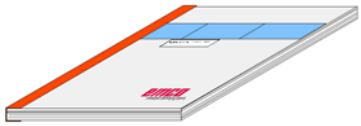
	Roughing tool left No. PCLNC K12 T	271 040
	Copying tool left No. SDJCL 1212 D07	271 050
	Copying tool right No. SDJCR 1212 D07	271 070
	Copying tool neutral No. SDNCN 1212 D07	271 060
	OD-thread tool left No. NL 12-3 LH	271 100
	Parting off tool No. L150.15.15.1212-3/M0	271 080
	Roughing bore bar holder No. S16H SCLCL 09 ø16 x 100 mm	271 120
	Boring bar holder No. S16H SDUCL 07 ø16 x 100 mm	271 130
	Boring bar holder No. S10D SDUCL 07 ø10 x 60 mm	271 140
	ID-thread tool right No. NVR 10-2 RH ø10 x 60 mm for inside threads 0,5-1,5 mm	260 627
	ID-thread tool right Nr. NVR 16-3 RH ø16 x 100 mm for inside threads 1,75-3 mm	271 180
	Drills, HSS 25 twist drills ø1-13mm (0.5 mm graduated) 9 twist drills ø2-10 mm (1 mm graduated)	781 280 260 628
	Twist drills for core holes, HSS 5 core hole drills ø2.5, 3.3, 4.2, 5.0, 6.8 mm 6 core hole drills ø2.5 - 8.5 mm	771 120 271 230
	Twist drills, HSS ø12 mm, extra short accord. DIN 1897 ø16 mm, extra short accord. DIN 1897	271 200 271 210
	Centre drill, HSS ø6,8 mm A8, DIN 333	573 770 271 220
	Screw taps, HSS DIN 352 6 screw taps M3 - M10 in box Screw tap M3 (shank ø 3,5 mm) Screw tap M4 (shank ø 4,5 mm) Screw tap M5 (shank ø 6 mm) Screw tap M6 (shank ø 6 mm) Screw tap M8 (shank ø 6 mm) Screw tap M10 (shank ø 7 mm)	781 310 781 301 781 302 781 303 781 304 781 305 781 306

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


Setting tools

	Optical tool presetting device For registration of tool datas in X- and Z-direction	A7Z 610
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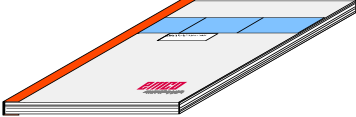
Manuals

	<p>Manual Concept Turn 105</p>	<p>DE 1105 EN 1105 FR 1105 SP 1105 TA 1105 HL 1105 CZ 1105</p>
<p>Programmieranleitungen Drehen</p> <p>Programming Instructions Turning</p> <p>Ältere WinNC's und weitere Sprachen Auf Anfrage</p> <p>Former WinNC's and further languages On request</p> <p>EMCO Win3D-View - Drehen Die Anleitung für Win3DView wurde aufgelassen und in die Anleitung für WinNC integriert.</p> <p>EMCO Win3D-View - Turning The manual for Win3DView has been abandoned and integrated into the manual for WinNC.</p> 	<p>WinNC SINUMERIK OPERATE 840Dsi/828D T</p> <p>Manual WinNC SINUMERIK Operate - T</p> <p>WinNC FANUC Series 31i - T</p> <p>Manual WinNC FANUC Series 31i – T</p> <p>WinNC FAGOR 8055 TC</p> <p>Manual WinNC FAGOR 8055 TC - T</p>	<p>DE 1849 EN 1849 FR 1849 HL 1849 SP 1849 TA 1849 CZ 1849</p> <p>DE1847 EN1847 SP1847 TA1847 HL1847 FR1847 CZ1847</p> <p>DE 1819 EN 1819 FR 1819 HL 1809 SP 1819 TA 1819</p>
	<p>Bedienungsanleitung CamConcept Instruction Manual CamConcept</p> <p>Manual CAMConcept T</p>	<p>DE 1829 EN 1829 FR 1829 HL 1829 SP 1829 TA 1829</p>

Courseware

	<p>E[MCO] Campus</p> <p>E-Learning 2.0 for machining. Multimedia teaching and learning materials for CNC</p> <p>.</p> <p>E[MCO] Campus 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>Languages German, English, Spanish, Chinese, Czech, Romanian, Polish, Slovenian</p> <p>Single-user license 1</p> <p>Multiple-user license 20</p> <p>Multiple-user license 50</p> <p>Multiple-user license 100</p> <p>Campus License A Campus-License consists of several Multiple licenses. 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>X2Y 400</p> <p>X2Y 410</p> <p>X2Y 420</p> <p>X2Y 430</p> <p>On request</p>
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Catalogues

	EMCONOMY moves	DE 2801 EN 2801 FR 2801 SP 2801 RU 2801 CZ 2801
	CONCEPT TURN 105	DE 4522 EN 4522 TA 4522 SP 4522

Packing

	European packing Standard packing	
	Optionen to standard packing for Machine Turn105:	
	Climate packing Pallet, Alu-bandage, various accessories	ZVP 547 120
	Seaworthy packing requires seaworthy packing ZVP 547120!	ZVP 301 124

Packing machine base

	Standard packing for machine base	Incl.
	Climate packing Pallet, Alu-bandage, various accessories	ZVP 547 120
	Seaworthy packing requires climate packing ZVP 547120!	ZVP 301 124