

## TECHNICAL SPECIFICATION

# *Concept TURN 55*

PC-controlled slant-bed lathe  
for the universal CNC education



### Control software

SINUMERIK OPERATE  
SIEMENS 810D / 840D  
SIEMENS 810 / 820  
GE FANUC Series 21  
GE FANUC Series 0  
FAGOR 8055 TC  
EMCOTRONIC T02  
EMCO CAMCONCEPT  
EMCO EASY CYCLE

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## Technical data of the machine

<b>Working area</b>		
Swing over bed	[mm]	ø130
Swing over cross slide	[mm]	ø60
Max.machining diameter (chuck parts with tailstock)	[mm]	ø52
Max. parts length	[mm]	215
<b>Travel</b>		
Travel in X-axis	[mm]	48
Travel in Z-axis	[mm]	236
<b>Main spindle</b>		
Spindle nose according factory standard		
Spindle bore	[mm]	ø 16
Chuck diameter	[mm]	74
Hole to chuck	[mm]	ø 15
Speed range	[rpm]	120-4000
Mechanical spindle speed		2
Max. torque	[Nm]	14
<b>Main drive</b>		
AC-motor, power	[W]	750
Speed range	[rpm]	1400
<b>Tool turret</b>		
Number of tool stations		8
Tool holding inside / outside		4 / 4
Tool section for square tools	[mm]	12 x 12
Shank diameter for boring bars	[mm]	ø 10
<b>Feed drives</b>		
3-phase step motor with resolution	[mm]	0,0005
Rapid traverse in X / Z	[m/min]	2
Feed thrust in X / Z (stepless adjustable)	[m/min]	0 - 2
Feed power in X / Z	[N]	1000
Positioning variation according VDI 3441 in X	[mm]	0,008
Positioning variation according VDI 3441 in Z	[mm]	0,008
<b>Tailstock</b>		
Quill stroke	[mm]	35
Quill diameter	[mm]	22
Internal taper		MT 1
<b>Lubrication system</b>		
Guide ways		Oil
All other lubrication parts		Grease

<b>Pneumatic unit (Option)</b>		
Basic pneumatic unit for automatic clamping devices, tailstock, doors		
Air pressure required	[bar]	6
Air hose connection	[mm]	ø 10
Compressed air quality	cleanliness class 4 (ISO 8573-1)	
<b>Automatic clamping device (Option)</b>		
Pneumatic solid clamping cylinder with 3-jaw power chuck incl. pressure control and blowing-out unit		
Chuck diameter	[mm]	76
<b>Automatic tailstock (Option)</b>		
Electro-mechanical tailstock with end position control		
Quill stroke	[mm]	15
<b>Automatic door (Option)</b>		
Automatic door (pneumatic), incl. position control		
<b>Painting</b>		
light gray	RAL Nr. 7035	
traffic red	RAL Nr. 3020	
graphite gray	RAL Nr. 7024	
<b>Power supply</b>		
Voltage (reversible) 1/N/PE	[V]	115/230
Admissible voltage fluctuations	[%]	+5/-10
Frequency	[Hz]	50/60
Connected load value of the machine	[kVA]	0,85
Max. main fuse for the machine	[A-slow]	12
<b>Safety equipment</b>		
Machine full covered, axis limit switch door limit switch, emergency off switch		according CE- standard
<b>Dimensions/weight</b>		
Height of the center line over the floor	[mm]	320
Total height	[mm]	400
Floor space W×T	[mm]	840×695
Total weight of the machine	[kg]	85
<b>Sound pressure level</b>		
Sound pressure level, average of value	[db(A)]	65
Measuring method: Envelope surface measuring method acc. to DIN 45 635		
Operating status: max.spindle speed at idle running		
<b>Machine acceptance</b>		
Works standard similar DIN 8605		
<b>Safety rules / norms</b>		
According to EEC - rules / CE		
EN292 part 1/2, EN60204 part 1		
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)

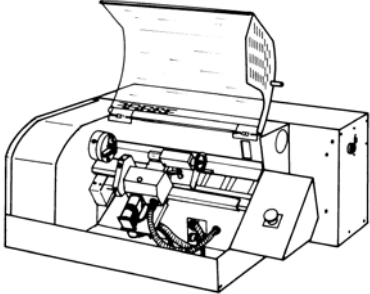
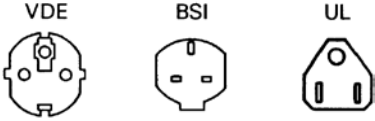
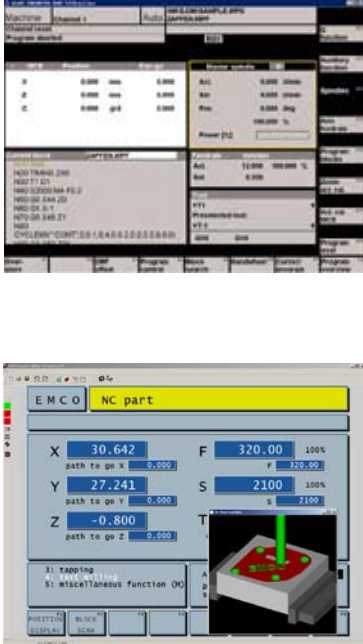
### *PC-minimum configuration*

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:**

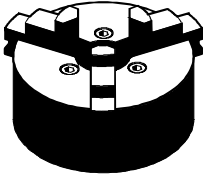
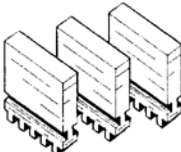
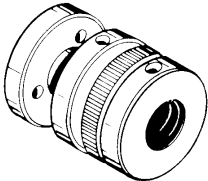

For the direct control of the CONCEPT machine tools and includes machine specific datas. Each machine license is specially done for each CONCEPT machine.

# Basic machine

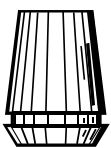
	DESCRIPTION	REF.NO.
 <p><b>ATTENTION:</b> PC, software and control keyboard are not included in basic machine!</p>	<p><b>EMCO Concept TURN 55</b> PC-controlled slant-bed lathe for the CNC basic training with interchangeable control unit.</p> <p>Machine complete with fully enclosed working area, safety units acc. to CE-regulations, stepless adjustable main drive, 8-station tool turret, manual tailstock, automatic movement to the reference position, electrical and mechanical preparation for automation, connection cable PC - machine, disk with machine data, tool-set for operation, operation manual with spare part list.</p>	<p>A6F 000</p>
	<p><b>2. Power supply cable</b></p> <p>Indicate type of cable when ordering:</p> <p>Power supply cable VDE Power supply cable BSI Power supply cable UL</p>	<p>A4Z 010 A4Z 030 A4Z 050</p>
	<p><b>Software (32bit and 64bit)</b></p> <p>WinNC-control software, machine license. In case of order please indicate type of control required:</p> <ul style="list-style-type: none"> <li>SINUMERIK OPERATE</li> <li>SIEMENS 810/820</li> <li>SIEMENS 810D/840D</li> <li>GE FANUC Series 0</li> <li>GE FANUC Series21</li> <li>EMCOTRONIC TM02</li> <li>EMCO EASY CYCLE</li> <li>FAGOR 8055 TC</li> </ul> <p><b>EMCO CamConcept (32bit and 64bit machine license)</b></p> <p>CamConcept contains the NC-Format DIN/ISO. For translation to other CNC codes postprocessors are available optional:</p> <p>Single licenses:</p> <ul style="list-style-type: none"> <li>Postprocessor for WinNC Sinumerik 840D</li> <li>Postprocessor for WinNC Fanuc21</li> <li>Postprocessor for WinNC Sinumerik 810/820</li> <li>Postprocessor for WinNC Fanuc0</li> <li>Postprocessor for WinNC Emcotronic TM02</li> </ul>	<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>

	DESCRIPTION	REF.NO.
	<p><b><u>EMCO Win 3D-View, turning (32bit and 64bit)</u></b></p> <p>3D-graphic simulation Option for all WinNC's for process visualisation</p> <p>EMCO Win 3D-View, turning, single license</p>	X5A 250
	<p><b><u>Control keyboard – basic case</u></b></p> <p>Incl.connection cable USB</p>	X9B 000
	<p><b><u>TFT- Display</u></b></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><b><u>Control keyboard – key module</u></b></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>

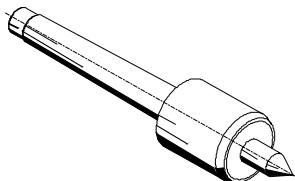
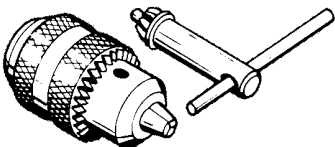
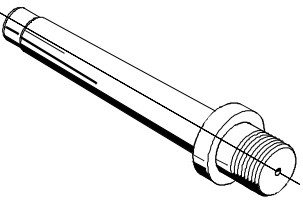
## Clamping devices for workpieces

	DESCRIPTION	REF.NO.
	<p><b><u>3-jaw lathe chuck</u></b></p> <p>Diameter 74 mm, with chuck key, incl. 1 set of reversible jaws and flange</p>	<p>A6Z 630</p>
	<p><b><u>Clamping jaws</u></b></p> <p>Jaws for A6Z 630 1 set of soft toothed jaws</p>	<p>262 010</p>
	<p><b><u>Collet attachment</u></b></p> <p>Consisting of collet holder, union nut and two dowel pins For collets type ESX 25 Clamping range 1,5-16 mm</p>	<p>A5Z 040</p>
	<p><b><u>Set of collets</u></b></p> <p>Set of 14 collets, stepless from <math>\varnothing 1,5</math> mm to 14 mm. Type of collets ESX 25 - DIN 6499B Delivery in wooden box</p>	<p>225 000</p>

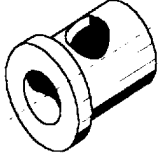


	DESCRIPTION	REF.NO.	
	<p><b>Collets</b></p> <p>Type ESX 25                      DIN 6499B</p> <p>nominal-ø                      Clamping range</p>		
	2,0	1,5 to 2,0	225 020
	2,5	2,0 to 2,5	225 025
	3,0	2,5 to 3,0	225 030
	4,0	3,0 to 4,0	225 040
	5,0	4,0 to 5,0	225 050
	6,0	5,0 to 6,0	225 060
	7,0	6,0 to 7,0	225 070
	8,0	7,0 to 8,0	225 080
	9,0	8,0 to 9,0	225 090
	10,0	9,0 to 10,0	225 100
	11,0	10,0 to 11,0	225 110
	12,0	11,0 to 12,0	225 120
	13,0	12,0 to 13,0	225 130
	14,0	13,0 to 14,0	225 140
	15,0	14,0 to 15,0	225 150
	16,0	15,0 to 16,0	225 160

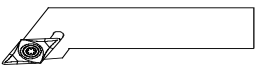
## Tailstock accessories

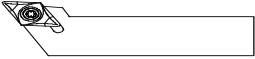


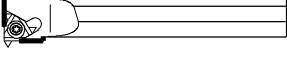
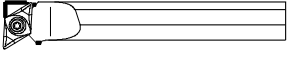

	DESCRIPTION	REF.NO.
	<p><b>Live center MT1</b></p> <p>Triple-bearing live center for supporting long work-pieces.</p>	A5Z 260
	<p><b>3-jaw drill chuck</b></p> <p>Capacity <math>\varnothing 1 - 8</math> mm, mounting thread M14x1 mm, and chuck key</p>	152 500
	<p><b>Morse taper arbor MT1</b></p> <p>With M14x1 mounting thread for mounting drill chuck to tailstock</p>	A5Z 280






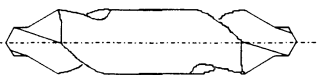
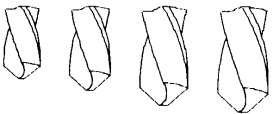

## Accessory for tool turret

	DESCRIPTION	REF.NO.
	<p><b><u>Reduction sleeve</u></b></p> <p>8 reduction collets <math>\varnothing</math> 2 - 9 mm for mounting the twist drills</p>	A6Z 270

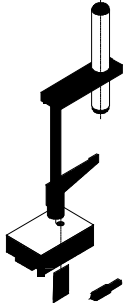
## Tools

	DESCRIPTION	REF.NO.
	<p><b><u>Tool Package "Basic"</u></b></p> <p>with</p> <p>1 # 260 601 Copying Tool Right</p> <p>1 # 260 602 Copying Tool Left</p> <p>1 # 260 603 Copying Tool Neutral</p> <p>1 # 260 620 OD-Thread Tool Right</p> <p>1 # 260 621 Inserts For OD-Thread Tool</p> <p>1 # 260 628 Twist Drills 9 pcs.</p> <p>1 # 271 056 Inserts for Alu</p> <p>1 # 271 220 Centre Drill A8, DIN 333</p> <p>1 # A6Z 270 Reduction Sleeves 8 pcs.</p>	A6Z 980
	<p><b><u>Tool Package "Extended"</u></b></p> <p>with</p> <p>1 # 260 601 Copying Tool Right</p> <p>1 # 260 602 Copying Tool Left</p> <p>1 # 260 603 Copying Tool Neutral</p> <p>1 # 260 606 Boring Bar D10x60mm</p> <p>1 # 260 620 OD-Thread Tool Right</p> <p>1 # 260 621 Inserts For OD-Thread Tool</p> <p>1 # 260 626 Inserts For ID-Thread Tool</p> <p>1 # 260 627 ID-Thread Tool D10x60mm</p> <p>1 # 260 628 Twist Drills 9 pcs.</p> <p>1 # 264 020 Parting Off Tool</p> <p>1 # 271 056 Inserts For Alu</p> <p>1 # 271 086 Inserts For Parting-Off Tool</p> <p>1 # 271 220 Centre Drill A8, DIN 333</p> <p>1 # A6Z 050 Twist Drill D 12mm</p> <p>1 # A6Z 270 Reduction Sleeves 8 pcs.</p>	A6Z 990
	<p><b><u>Copying tool right</u></b></p> <p>SDJCR 1210 D07</p>	260 601

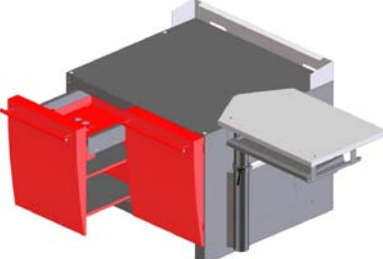
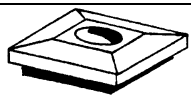

	<b><u>Copying tool left</u></b> SDJCL 1210 D07	260 602
	<b><u>Copying tool neutral</u></b> SDNCN 1210 D07	260 603
	<b><u>OD-thread tool right</u></b> max. pitch 1,5mm NL 1210-2	260 620
	<b><u>ID-thread tool, <math>\varnothing 10 \times 60</math> mm</u></b> max. pitch 1,5mm NVR 12-2 L=60mm	260 627
	<b><u>Boring bar <math>\varnothing 10 \times 60</math> mm</u></b> SDVCR 07 S10D	260 606
	<b><u>Parting off tool</u></b> E-20124	264 020

	DESCRIPTION	REF.NO.
	<b><u>Indexable inserts for steel</u></b> No. DCMT 070204-EN S40T for: 260 601, 260 602, 260 603, 260 606 10 pcs.	260 610
	<b><u>Indexable inserts for alu</u></b> No. DCGT 070204-27 H10T for: 260 601, 260 602, 260 603, 260 606 10 pcs.	271 056
	<b><u>Indexable inserts for parting-off tool, 2mm</u></b> FX 2.2N0.10-27P H216T for: 264 020 5 pcs.	271 086
	<b><u>Indexable inserts for OD-thread tool</u></b> pitch 0,5 – 1,5 mm No. 11ER-T-A60 S30T for: 260 620 5 pcs.	260 621
	<b><u>Indexable inserts for ID-thread tool</u></b> pitch 0,5 – 1,5 mm No. 11IR-T-A60 S30T for: 260 627 5 pcs.	260 626
	<b><u>Centre drill, HSS</u></b> ø6,8 mm A8, DIN 333	573 770 271 220
	<b><u>Set of twist drills, HSS</u></b> 9 twist drills ø2-10 mm (1 mm graded)	260 628
	<b><u>Twist drills, HSS</u></b> ø12 mm	A6Z 050

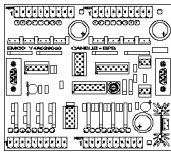
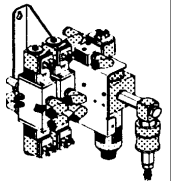
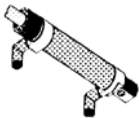
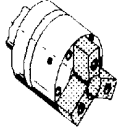
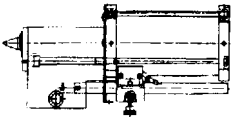


## Setting tools

	DESCRIPTION	REF.NO.
	<p><b><u>Optical tool presetting device</u></b></p> <p>For recording tool data in X and Z direction. Complete with stand, vertical column, clamp Lens, microscope tube (magnification 10x), reference tool</p>	A6Z 060

## Accessories

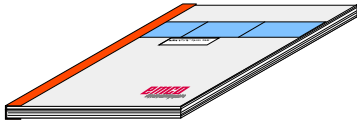
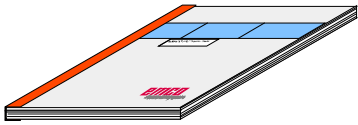
	DESCRIPTION	REF.NO.
	<p><b><u>Machine base</u></b></p> <p>Base including: drawer for tools and other devices, deposit for PC-tower. WxDxH 1135x1100x800 mm Add machine type to your order! A cover sheet is delivered then.</p>	A7Z 210
	<p><b><u>Cover sheet for machine base</u></b></p>	A6Z 670
	<p><b><u>Swivel table</u></b></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>	A7Z 430
	<p><b><u>Levelling element</u></b></p> <p>4 pieces required, when using with machine base</p>	F3Z 150
	<p><b><u>Electronic handwheel</u></b></p> <p>For moving the machine's axes manually to proceed zero point- and tool offsets</p> <p><b>Retrofit able by EMCO technician !!</b> <b>Possible with ACC-Hardware V2 and higher!!</b></p>	Q1Z 340

## Accessories for automation

	DESCRIPTION	REF.NO.
	<p><b><u>I/O – Extension board</u></b></p> <p>I/O – extension board is required for <u>ALL</u> automation accessories.</p> <p><b>Retrofit able by EMCO technician !!</b></p>	A6Z 640
	<p><b><u>Pneumatic unit</u></b></p> <p>Prepared for connection of automatic door and pneumatic chuck</p> <p><b>Factory installed only !!</b></p>	A6Z 550
	<p><b><u>Automatic door</u></b></p> <p>Incl. stroke control</p> <p><b>Pneumatic unit necessary !!</b> <b>Factory installed only !!</b></p>	A6Z 510
	<p><b><u>Pneumatic chuck</u></b></p> <p>Pneumatic solid clamping cylinder incl. 3 – jaw power chuck and blow-out device.</p> <p>Top jaws for pneumatic chuck</p> <p><b>Pneumatic unit necessary !!</b> <b>Factory installed only !!</b></p>	A6Z 530 A6Z 560
	<p><b><u>Electromechanical tailstock (without live center)</u></b></p> <p>Incl. board for clamping device and stroke control</p> <p><b>Factory installed only !!</b></p>	A6Z 520
	<p><b><u>Robotic-Interface</u></b></p> <p>Necessary for the FMS/CIM - operation (A6Z 640 necessary) <b>A6Z 640 necessary !!</b></p>	X1A 000
	<p><b><u>DNC-Interface</u></b></p> <p>Enables the remote control of WinNC via a software- protocol. The communication is done via the RS 232 interface <b>Not available for FAGOR 8055 TC !</b></p>	X5A 050

The accessories are containing all electrical and mechanical parts for mounting on the machine and a mounting manual.

## Manuals


	DESCRIPTION	REF.NO.
	<b>Manual Concept Turn 55</b>	DE 1055 EN 1055 FR 1055 SP 1055 TA 1055 HL 1055
	<b>Programming instruction</b>  WinNC for SINUMERIK OPERATE  WinNC SIEMENS 810/820-T  WinNC SIEMENS 810D/840D-T  WinNC GE FANUC Series 0-T  WinNC GE FANUC Series 21-T  WinNC EMCOTRONIC T02  WinNC FAGOR 8055TC  EMCO CAMCONCEPT – turning  EMCO EASY CYCLE	DE 1849 EN 1849  DE 1804 EN 1804 FR 1804 SP 1804 TA 1804 HL 1804  DE 1815 EN 1815 FR 1815 SP 1815 TA 1815 HL 1815  DE 1802 EN 1802 FR 1802 SP 1802 HL 1802 TA 1802  DE 1902 EN 1902 FR 1902 SP 1902 HL 1902 TA 1902  DE 1805 EN 1805 FR 1805 HL 1805 SP 1805 TA 1805  DE 1819 EN 1819 FR 1819 SP 1819 HL 1819 TA 1819  DE 1829 EN 1802 FR 1829 SP 1829 HL 1829 TA 1929  DE 1839 EN 1839 HL 1839 TA 1839 FR 1839



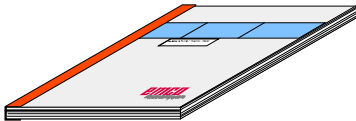
	EMCO Win3D-View - turning	SP 1839 CZ 1839  DE 1827 EN 1827 FR 1827 SP 1827 HL 1827 TA 1827
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## Courseware

	Description	Ref.-No.
	<p><b><u>E[MCO] Campus</u></b></p> <p><b>E-Learning 2.0 for machining. Multimedia teaching and learning materials for CNC training.</b></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><b>Single-user license</b> <b>Multi-user license 20</b> <b>Multi-user license 50</b> <b>Multi-user license 100</b></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><b>X2Y 400</b> <b>X2Y 410</b> <b>X2Y 420</b> <b>X2Y 430</b></p>

## Catalogues

	DESCRIPTION	REF.NO.
	<p><b><u>EMCONOMY moves</u></b></p>	<p>DE 2801 EN 2801 FR 2801 SP 2801 RU 2801 CZ 2801</p>
	<p><b><u>CONCEPT TURN 55</u></b></p>	<p>DE 4532 EN 4532 TA 4532 SP 4532</p>
	<p><b><u>EMCO Industrial Training</u></b></p>	<p>DE 1837 EN 1837 TA 1837 SP 1837</p>

## Packing

	Description	Ref.-No.
	<p><b><u>Europe packing</u></b> Standard packing</p>	incl.
	<p><b><u>Options to european packing for Machine Turn55:</u></b></p>	
	<p><b><u>Climate packing</u></b> Pallet, Alu-bandage, various accessories</p>	ZVP 547 310
	<p><b><u>Seaworthy packing</u></b> (as option to European- and Climate packing) <b>requires seaworthy packing ZVP 547310!</b></p>	ZVP301 080
	<p><b><u>Options to european packing for machine base:</u></b></p>	
	<p><b><u>Climate packing</u></b> Pallet, Alu-bandage, various accessories</p>	ZVP 547 120
	<p><b><u>Seaworthy packing</u></b> (as option to European- and Climate packing) <b>requires seaworthy packing ZVP 547120!</b></p>	ZVP 301 124