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TECHNICAL SPECIFICATION

E350

Vertical 3 Axes Machining Center



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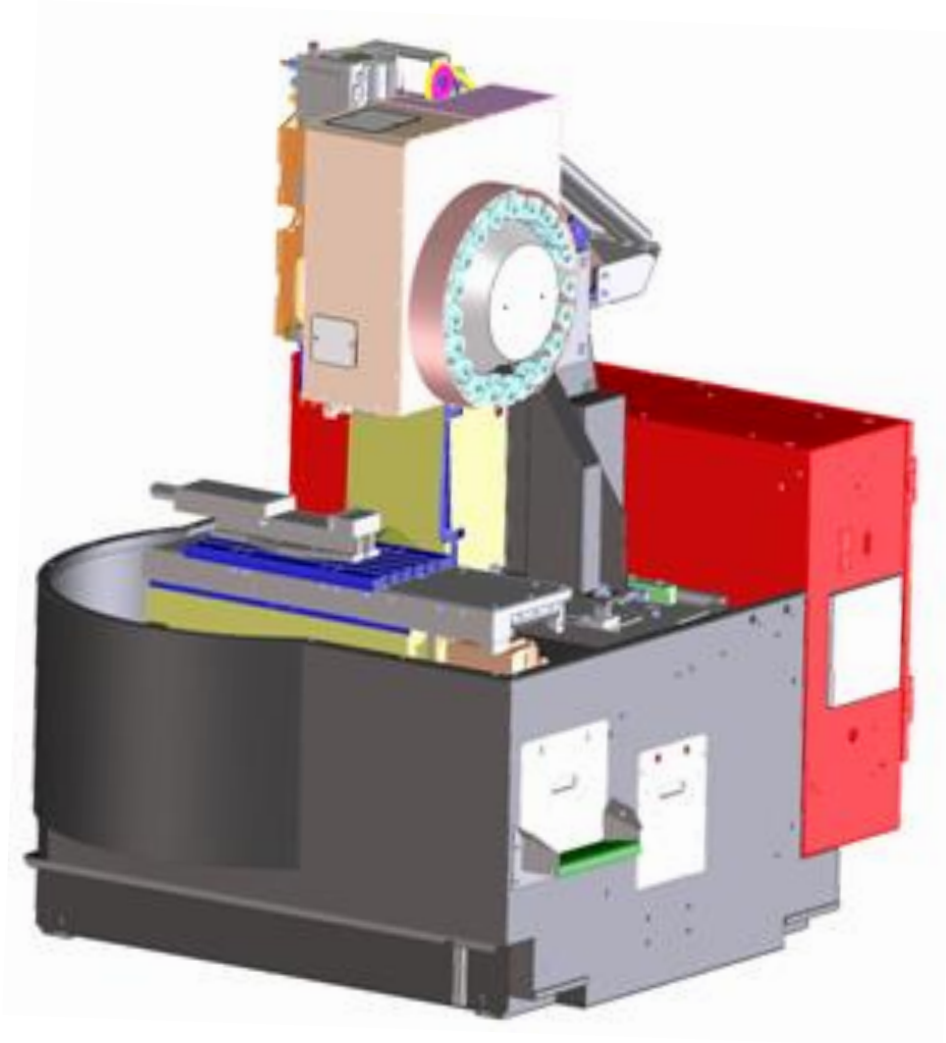
Structure Concept

E350

EXTREME ROBUST **C-FRAME** DESIGN

All components made of cast iron



Machine Description

The E350 is an ideal machine to start into sophisticated milling operation with best manufacturing tolerances and the most modern control technology from Siemens on small work pieces.

Spindle
The spindle shows a high drive power. The basic version is built with a mechanical spindle direct driven.

Axes
The axes run on linear roller guides.

Tool changer
The tool changer is a fast dual gripper arm with directional logic and random tool selection. This way the tool change time is reduced immensely.

Covers
The working area is closed all the way around the machine. The machine door is dimensioned largely to allow an easy loading of the machine.

Overview on Machine Versions

E 350

E350 >Siemens<

with ISO 30 tool taper and
10.000 rpm spindle speed
see page 5

Basic Machine

Q4E S02K



E350

3 Axis - Vertical Milling Center with integrated tool magazine 20 tools

Control
SIEMENS 828D with Shopmill

Spindle

Speed:	10.000 rpm
Spindle Power:	6,8 KW
Spindle Torque:	34 Nm

Tool Taper
ISO 30 DIN 69871

Tool Pull Studs
ISO69872 (similar ISO 7388/2 Type A)

Strokes X 350mm, Y 250mm, Z 300mm

Distance spindle nose-Table 120–420mm

Rapid speed X, Y, Z 24 m/min

Table
Cast iron table with T-slots

Number – Width – Distance:	5 – 12 – 45
Useable clamping surface:	520 x 300 mm
Table load max.:	100 kg

Tool Changer
Tool drum with 20 tools

Tool change time (tool - tool)	2,5s

Coolant Standard pump 3,5 bar

Standard Equipment

- Working area illumination LED
- Central lubrication
- Rigid tapping
- Automatic cleaning of tool mount in spindle during tool change
- Coolant pan 140 Liter

Control Languages

Standard Languages

DE6 400 	**Control language / GERMAN** Standard version includes two languages switchable from German to English. Additional languages available as per surcharge.
EN6 400 	**Control language / ENGLISH** Standard version includes two languages switchable from German to English. Additional languages available as per surcharge.
TA6 400 	**Control language / ITALIAN** Standard version includes two languages switchable from Italian to English. Additional languages available as per surcharge. We reserve the right, that not all the displayed text is incorporated in the special language at the control..

Additional Language for Extra Costs

	All additional languages: Additional control language, switchable to English when needed. We reserve the right, that not all the displayed text is incorporated in the special language at the control..
FR6 400 	**Control Language / FRENCH**
SP6 400 	**Control Language / SPANISH**
SE6 400 	**Control Language / SWEDISH**
CZ6 400 	**Control Language / CZECH**

DK6 400 	Control Language / DANISH
NL6 400 	Control Language / DUTCH
FI6 400 	Control Language / FINNISH
HU6 400 	Control Language / HUNGARIAN
PL6 400 	Control Language / POLISH
PT6 400 	Control Language / PORTUGUESE
RU6 400 	Control Language / RUSSIAN
TR6 400 	Control Language / TURKISH
CN6 400 	Control Language / CHINESE - SIMPLE

Control Options Siemens 828D

X3Z 600



Electronic Handwheel

Portable electronic hand-wheel for SIEMENS or FANUC controls. Offers a convenient manual operation of the machine also with open machine door.

ATTENTION: For machines with swing loader, this hand-wheel is replaced by the operating and display element Siemens HT2

Retrofit able through EMCO technician

X3Z 271

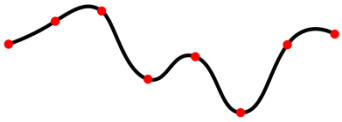


Full PC Keyboard

for comfortable programming at the Sinumerik.

American QWERTY key assignment, with SINUMERIK hotkey function keys.

X3Z 410



SPLINE Interpolation

SPLINE (A, B, C)
Software Option for connection of points by curves. Extended interpolation.

Retrofit able through EMCO technician

X3Z 690



SHOPTURN / SHOPMILL Extension Package

Consisting of:

- Rest material removing cycle
- Monitoring function for simulation

Retrofit able through EMCO technician

X3Z 460



CAD Reader for SINUMERIK

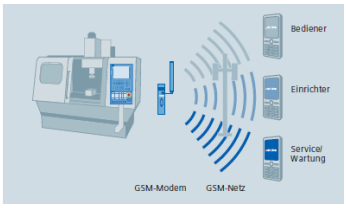
Functions by the CAD Reader:

- Import DXF files
- Hide graphics layers
- Automatic contour trace
- Optional workpiece zero per contour/drill point
- Several contours/drill points can be selected simultaneously
- Create and convert contours or drill patterns for ShopMill, ShopTurn, SINUMERIK Operate
- Display existing contours/drill points in geometry processor/cycles support.

Available for HMI OPERATE 4.7 and higher!

Retrofit able through EMCO technician

X3Z 450

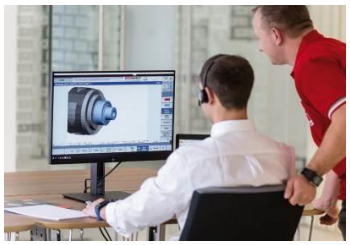


EASY MESSAGE for SINUMERIK 828D

Easy Message allows you to get process information (e.g. tool wear) out of the CNC control to your mobile phone via SMS. Just insert a SIM-card of your choice, set a user profile, select the information you want to get to your mobile phone and keep up to date. (SIM card not included)

Retrofit able through EMCO technician

X3Z 010



EMCO Remote Support

Installation Hardware ex factory to use the EMCO Remote Support for machines without emcoNNECT.

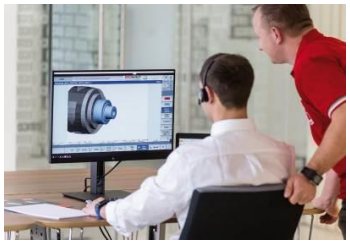
Use EMCO Remote Support for 36 months from commissioning

- First 12 months free
- Direct access by EMCO customer service employees on the controller
- Quick and easy support in case of problems
- Remote diagnostics and remote maintenance of the machine
- Reduction of downtime and service assignments to a minimum
-

Prerequisite: Network connection and connection setup (TeamViewer based) of the machine over the Internet.

Factory installed only

X3Z 015



EMCO Remote Support Extension

Use EMCO Remote Support further 36 months.

- Direct access by EMCO customer service employees on the controller
- Quick and easy support in case of problems
- Remote diagnostics and remote maintenance of the machine
- Reduction of downtime and service assignments to a minimum
-

Prerequisite: Remote support available and active.

Measuring Options Siemens 828D

Q4Z 750



Automatic Tool Measurement E350, CM260

A MARPOSS probe TS30, mounted onto the machine table for touching cutter edges and automatic takeover into tool offset memory.

Factory installed only!

Q4Z 741



Automatic Workpiece Measurement E350, CM260

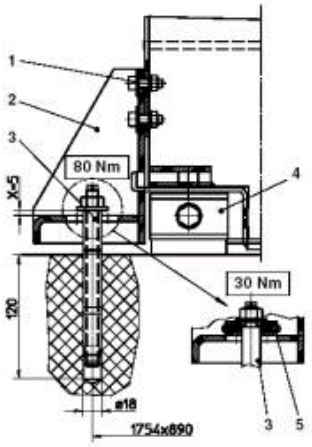
A MARPOSS probe WRP45 with radio transmitter, inserted in main spindle for touching work piece dimensions and automatic takeover of the values via measuring cycle.

Factory installed only!

Accessory

S6Z 460

Machine Installation Kit

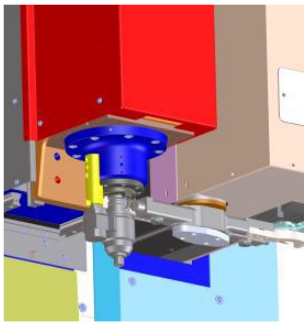


Consisting of:

- 4x vibration absorbing, height adjustable levelling elements 881500
- 4x angle plates for lateral mounting on the machine to fasten the machine to the floor
- 4x anchor bolts to fasten the machine to the floor

Q4Z 010

Spindle Speeder E350/CM260 20.000 U/min



High speed tool spindle mounted in the milling spindle, with locking bracket,
Speed ratio: 1:5

Length spindle nose - end of collet: 134 mm

To be used with ER11 Collets

Factory installed only!

Q4Z 21S

Linear Scale X-Axis



Linear measuring of position with ”linear scale” in the X-axis to eliminate displacement (thermal growth) and increase machine precision. Pressurizing of the scales prevent penetration of dust or oil.

Factory installed only!

Q4Z 22S

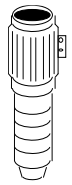
Linear Scale Y-Axis



Linear measuring of position with ”linear scale” in the Y-axis to eliminate displacement (thermal growth) and increase machine precision. Pressurizing of the scales prevent penetration of dust or oil.

Factory installed only!

A8Z 110

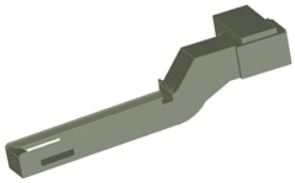


High Pressure Coolant Equipment 8 bar

High pressure pump for coolant, replaces standard pump, maximum pressure 8 bar.

Factory installed only!

Q4Z 850



Chip Conveyor E350/CM260 500 mm

Hinge type chip conveyor, dump-height 500mm, suitable for:

- long steel chips
- snarl chips
- wool chips
- dry and wet machining

Factory installed only!

S4Z 140



Coolant Pistol / Multiflow

To clean the machining area from chips with coolant. The option includes a cleaning gun with flow and jet adjustment, as well as a solenoid valve, key switch and spiral hose.
(Note: never use compressed air to clean the machine!)

ConceptTURN/ConceptMill 260 only:
Requires coolant device A8Z 090 or Q4Z 090!

Retrofit able through EMCO technician!

R9Z 035



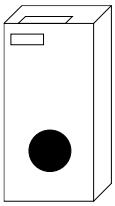
Machine Status Lamp LED

The machine status lamp has 3 color fields:

Red…	Alarm
Green..	Automatic mode
White..	Material handling

Retrofit able through EMCO technician!

Q4Z 130

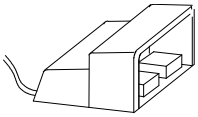


Air Conditioner Electrical Cabinet

Seals the cabinet and keeps temperature constant; no air is exchanged between the inside and the outside, necessary for extreme environmental conditions (tropical climate) or graphite or cast work or in oil dust contaminated surroundings.

Retrofit able by EMCO specialist!

R3Z 580



Foot Pedal

To actuate chuck or tailstock

Retrofit able through EMCO technician!

Q4Z 040



Automatic Door E350/CM260

Including stroke control and safety equipment.

Motor and housing for transport removeable.
Additional height: 135mm.

Factory installed only!

Q4Z 020



Oil Mist Separator E350/CM260

Mechanical oil mist separator (RECOJET® -2) for separation of water-based aerosols such as cooling lubricant or spray mist.

Air through put: 1000 m^3/h
Power: 250 Watt
Connection diameter: ø160 mm

Inclusive EUREVEN-F2011 filter top unit with moisture-repelling, synthetic filter material.
Easy to clean.

Suitable for low smoke generation.

Retrofit able through EMCO technician!

Dividing Heads (4th Axis)

Q4Z 650



Center height 80 mm

NC-dividing head (4th axis) 80 mm
(without chuck, without flange)

Including:
Dividing head WALTER TANI 80 NEG,
clamping screws and clamping shoes,
necessary for the mounting on milling table

Kind of clamping	pneumatically
Necessary pressur	6 bar
Dividing precision	+/- 60”
Repeating accuracy	+/- 10”
Spindle height	80 mm
Bore ø	24 mm
Total height	136 mm

Factory installed only!

Q1Z 610

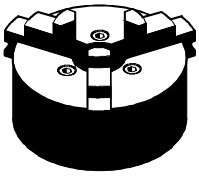


Manual Tailstock for NC Dividing Head (80mm)

Total height:	93 mm
Center height:	80 mm
Live center:	MT 1
Mouning length:	110 mm
Total length:	200 mm
Quill stroke:	ca. 15 mm

Retrofit able

Q1Z 600



Manual 3-jaw Chuck for Dividing Head (80mm)

Diameter:	82 mm
Bore:	18 mm

Incl. 1 set of outside and inside jaws
Incl. flange for dividing head

Retrofit able

Q4Z 550

NC-dividing head (4th axis) 100 mm

(ohne Futter und ohne Flansch)



Including:
Dividing head WALTER TANI 80 NEG,
clamping screws and clamping shoes,
necessary for the mounting on milling table

Center height 100 mm

Kind of clamping	pneumatically
Necessary pressur	6 bar
Dividing precision	+/- 60”
Repeating accuracy	+/- 10”
Spindle height	100 mm
Bore ø	32 mm
Total height	171 mm

In case a 5th axis shall be ordered in future, the option **Q4Z 835** “Preparation for 5th axis” must be ordered to allow a later retrofit of the 5th axis.

Factory installed only!

Q4Z 610

Manual Tailstock for NC Dividing Head (100mm)



Total height:	113 mm
Center height:	100 mm
Live center:	MT 1
Mouning length:	110 mm
Total length:	200 mm
Quill stroke:	ca. 15 mm

Retrofit able

Q4Z 600

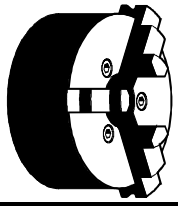
Flange for NC Dividing Head (100mm)



With this adapter Flange the chucks
V4W 186R and A8Z 060 can be mounted onto
the NC-dividing head TANI 100.

Retrofit able

V4W 186R



3 Jaw Lathe Chuck ø 82 mm

Chuck diameter ø82 mm
incl. 1 set of inside/outside stepped hard jaws

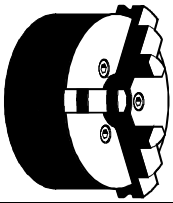
V0W 013R



Clamping Jaws

Jaws for V4W 186R
1 set of toothed soft jaws

A8Z 060



Manual 3-jaw Chuck ø 100 mm

Diameter: 100 mm
Bore: 17 mm
Incl. 1 set outside and inside jaws

444 060R



Set Sof Jaws

For manual 3-jaw chuck A8Z 060

V4W 082



Manual 4-jaw Chuck ø 82 mm

With flange

Diameter: 82 mm
Bore: 18 mm
Incl. 1 set outside and inside jaws

Clamping Devices for Work Pieces

781 010



Machine Vice, mechanic

Clamping width: 125 mm
Width of jaws: 110 mm

Can be mounted only in X direction.

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781 040



Machine Vice MSR 125 mechanic

Complete with clamps, stepped clamping shoes and necessary tools.

Height of Clamps	40 mm
Clamping width	150 mm
Width of jaws	125 mm

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781 050



Stepped clamp for fix clamp (MSR 125)

Stepped clamp for fix clamp
Option for 781040

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781 060



Stepped clamp for movable clamp (MSR 125)

Stepped clamp for movable clamp
Option for 781040

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781 070



Prism clamp with step

for movable clamp (MSR 125)
Prism clamp with step for movable clamp
Option for 781040

781 081

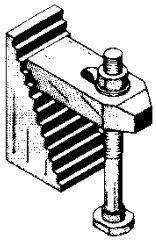


Machine Vice, hydraulic

Hydraulic high-pressure clamping device, manual.

Clamping width: 170 mm
Width of jaws: 110 mm

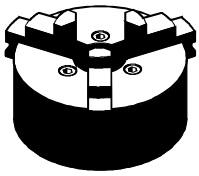
Can be mounted only in X direction.



Stepped Clamping Shoe
Complete with clamping screw

F3Z 210 Clamping range: 15 - 58 mm
F3Z 220 Clamping range: 50 – 125 mm

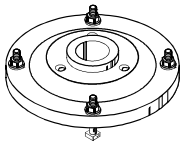
V1D 106R



3-jaw Chuck 125 mm

Röhm-chuck ø 125 mm
Including 1 set of hardened external and internal jaws

F3Z 230



Adapter Plate

Required for mounting the chuck # V1D 106R on the milling table.

Q4Z 520



Pneumatic Vice

Type Gressel
Including stroke control and blow-out device

Width of jaws	125 mm
Opening of jaws	max. 130 mm
Jaw stroke	4 mm
Total length	479 mm
Total height	93 mm
Clamping force	1000 – 5500 N
Pneum. pressure	2-8 bar

Factory installed only!

Tool Holder

250 180



Pull Stud for SK-30 DIN 69872-A M12

Pull stud for SK30 tool holders

Required for all SK30 tool holders!

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250 300

Tool Holder Package SK 30
E350/MM400/CM260

Consisting of:

1x	milling arbor ø 16
1x	milling arbor ø 22
4x	collet chuck ER 25
1x	shaft mill holder ø 10
1x	shaft mill holder ø 16

Balanced G 2,5 at 10.000 rpm.

Use only holders, balanced G 2,5 at 10.000 rpm

Pull studs not included.
Please order 8 pull studs!

250 100

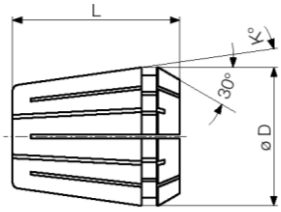


Collet Chuck SK30 DIN69871 ER25

For ESX 25 DIN6499 collets.
Balanced G 2,5 at 10.000 rpm.

Use only holders, balanced G 2,5 at 10.000 rpm

Please order for each tool holder one pull stud!



Collets ESX 25 (DIN 6499B) (430E)

Clamping range: ø 1 – 16 mm
Dimension D: ø 26 mm
Dimension L: 34 mm

	Nominal ø	Clamping area
225 020	2.0	1.5 - 2.0
225 025	2.5	2.0 - 2.5
225 030	3.0	2.5 - 3.0
225 040	4.0	3.0 - 4.0
225 050	5.0	4.0 - 5.0
225 060	6.0	5.0 - 6.0
225 070	7.0	6.0 - 7.0
225 080	8.0	7.0 - 8.0
225 090	9.0	8.0 - 9.0
225 100	10.0	9.0 - 10.0
225 110	11.0	10.0 - 11.0
225 120	12.0	11.0 - 12.0
225 130	13.0	12.0 - 13.0
225 140	14.0	13.0 - 14.0
225 150	15.0	14.0 - 15.0
225 160	16.0	15.0 - 16.0

225 001 Set of 16 collets ESX 25 in box



250 110 **Milling Arbor SK30 DIN69871 ø 16**

250 120 **Milling Arbor SK30 DIN69871 ø 22**



Including key and milling arbor collars.
Balanced G 2,5 at 10.000 rpm.

Use only holders, balanced G 2,5 at 10.000 rpm

Please order for each tool holder one pull stud!



Shaft Mill Holder SK30 DIN69871
Balanced G 2,5 at 10.000 rpm.

Use only holders, balanced G 2,5 at 10.000 rpm

250 130	For shaft mill	Ø 10 mm
250 140		Ø 12 mm
250 150		Ø 16 mm
250 160		Ø 20 mm

Please order for each tool holder one pull stud!

250 170 **Morse Taper Holder SK30 DIN69871 MT2**



Balanced G 2,5 at 10.000 rpm.

Use only holders, balanced G 2,5 at 10.000 rpm

Please order for each tool holder one pull stud!

Tool Packages

Q4Z 910	**Tool Package Basic CM260/E350/MM400**		
Tool holder and tools	with		
	1x	225 001	Set of collets ESX 25
	1x	225 060	Collet D 6mm
	1x	225 100	Collet D 10mm
	4x	250 100	Collet chuck SK30
	1x	250 110	Milling arbor D 16mm
	2x	250 130	Shaft mill holder D 10mm
	1x	250 150	Shaft mill holder D 16mm
	8x	250 180	Pull stud SK30
	1x	764 301	Slot end mill HSS D 3mm
	1x	764 303	Slot end mill HSS D 5mm
	1x	764 308	Slot end mill HSS D 10mm
	1x	764 410	Shell end mill D 40 x 20mm
	1x	771 010	NC start drill
	1x	771 030	Radius mill D 6mm
	1x	771 050	Angle milling cutter HSS
	1x	781 152	HD shank end mill D 10mm
	1x	781 280	Twist drill 25 pcs

Q4Z 920	**Tool Package Extended CM260/E350/MM400**		
Tool holder and tools	with		
	1x	225 001	Set of collets ESX 25
	2x	225 060	Collet D 6mm
	2x	225 100	Collet D 10mm
	1x	225 160	Collet D 16mm
	2x	250 100	Collet chuck SK30
	1x	250 120	Milling arbor D 22mm
	1x	250 140	Shaft mill holder D 12mm
	1x	250 150	Shaft mill holder D 16mm
	14x	250 180	Pull stud SK30
	1x	250 300	Tool holder package SK30
	1x	271 230	Core drills 6 Stück
	2x	764 301	Slot end mill HSS D 3mm
	2x	764 303	Slot end mill HSS D 5mm
	2x	764 308	Slot end mill HSS D 10mm
	1x	764 800	Face mill cutter 50mm for inserts
	1x	764 810	Edge mill cutter 50mm for inserts
	1x	764 820	Inserts for 764 800
	1x	764 830	Inserts for 764 810
	1x	764 850	Slot mill cutter D 16mm for inserts
	1x	764 860	Inserts for 764 850
	1x	771 010	NC start drill
	1x	771 040	Radius mill D 12mm
	1x	771 050	Angle milling cutter HSS
	2x	781 152	HD shank end mill D 10mm
	1x	781 280	Twist drill 25 pcs
	1x	781 300	Taps M3 - M8

Tools HSS

764 410 **Heavy Duty Shell End Mill, HSS**



With roughing finishing teeth
ø 40 x 20 mm, bore hole ø 16 mm

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764 900 **Staggered Tooth Side Mill, HSS**



Bore hole ø 16 mm
ø 35 x 5 mm



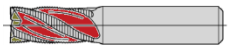
Radius Milling Cutter HSS Two-edged

771 030 shank- ø6 mm
771 040 shank- ø12 mm



Slot End Mill HSS DIN 327 Form B

764 301 Cutting ø 3 mm / shaft- ø 6 mm
764 302 Cutting ø 4 mm / shaft – ø 6 mm
764 303 Cutting ø 5 mm / shaft – ø 6 mm
764 304 Cutting ø 6 mm / shaft - ø6 mm
764 306 Cutting ø 8 mm / shaft- ø 8 mm
764 308 Cutting ø 10 mm / shaft – ø 10 mm
773 100 Cutting ø 12 mm / shaft – ø 12 mm
773 105 Cutting ø 16 mm / shaft – ø 16 mm



Heavy Duty Shank End Mill HSS DIN 844 A

764 200 Cutting ø 8 mm / shaft ø 8 mm
781 152 Cutting ø 10 mm / shaft ø 10 mm
781 151 Cutting ø 12 mm / shaft ø 12 mm
771 020 Cutting ø 16 mm / shaft ø 16 mm

---

771 050 **Angle Milling Cutter, HSS**



DIN 1833, Form B
45°, ø 16 x 4 mm, shaft ø 12 mm

---

764 400 **Angle Milling Cutter, HSS**



DIN 1833, Form A
60°, ø 16 mm, shaft ø 12 mm

771 010 **NC Start Drill HSS**



Shaft ø 10 mm, acute angle 120°

---

573 770 **Centre Drill HSS ø 6.8 mm**



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271 220 **Centre Drill HSS A8 DIN 333**



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781 280 **Twist Drills HSS ø 1 - 13**



25 twist drills ø1-13 mm (0,5 mm steps)

---

260 628 **Twist Drills HSS ø 2 - 10**



9 twist drills ø2-10 mm (1 mm steps)

---

271 230 **Twist Drills for Core Holes HSS**



6 twist drills for core holes
ø 2.5, 3.3, 4.2, 5.0, 6.8, 8.5 mm



Screw Taps HSS DIN 353

781 310 6 screw taps M3 – M10 in box

781 301 Screw tap M3 (shaft-ø 3.5 mm)
781 302 Screw tap M4 (shaft -ø 4.5 mm)
781 303 Screw tap M5 (shaft -ø 6 mm)
781 304 Screw tap M6 (shaft -ø 6 mm)
781 305 Screw tap M8 (shaft -ø 6 mm)
781 306 Screw tap M10 (shaft -ø 7 mm)

Milling Cutters with Carbide Plates

764 810



Edge Mill Cutter ø 50 mm

Cutting edge 90°, for carbide plates
Ø50 x 15 mm, shaft ID ø22mm
90EA.050R.P16
Required milling arbor: 250 120 + 250 180

764 830



Carbide Plates for Edge Mill Cutter 764810

10 pcs. APFT1604PDFR AK10F

764 800



Face Mill Cutter ø 50 mm

Cutting edge 45°, for carbide plates
Ø50 x 63 mm, shaft ID ø22mm
75PA.50R.E12
Required milling arbor: 250 120 + 250 180

764 820



Carbide Plates for Face Mill Cutter 764800

10 pcs. SEKR1203AFFN AK10F

764 850



Slot Mill Cutter ø 16 mm

For carbide plates
90ES.016R.P10
Required mill holder: 250 150 + 250 180

764 860



Carbide Plates for Slot Mill Cutter 764850

10 pcs. APKT1003PDER AM26C

Setting Tools

565 065



Dial Gauge with Magnetic Stand

Outside ring ø 58 mm, division 0.01 mm
measuring range 10 mm,
with shock protection

F1Z 390



Edge Indicator

Probe	ø 6 mm
Shank	ø 6 mm

---

764 841



3D Sensor

incl. short probe tip	ø 4 mm
clamping shank	ø 10 mm
length without shaft	96 mm
measuring range	± 2 mm
accuracy	0.01 mm

---

764 842



Spare Probe Ball Tip for 3D-Sensor

Length	25 mm
Probe tip	ø 4 mm

Programming Software

224 620



Basic license which includes the following ESPRIT modules:

- 2D / 3D Geometry Modeler
- Parasolid solid Modeler,
- NURBS Surface Modeler
- Adaptive Feature Detection
- Tool and Speed and Feed KnowledgeBase
- Universal Post Processing
- Solid Simulation and Verification
- Visual Basic for Applications and ESPRIT API

ESPRIT reads data from the following native formats: ACIS, DXF, IGES, Inventor (* .ipt, * .iam), Parasolid (X_T, X_B), Solid Edge (* .par, * .psm, *. Asm), SolidWorks () * .sldprt, * .sldasm), VDA, STEP, STL

Feature handover of Inventor, Solid Edge and SolidWorks.

EMCO-ESPRIT Package / Milling 3 Axes

ATTENTION: SPECIAL PRICE ACCORDING TO OFFER ONLY IN CONNECTION WITH NEW MACHINE PURCHASE!

The most powerful CAD/CAM programming software for turning, milling and drilling. In only a few steps you can create the CNC-program from a CAD drawing. A 3D dynamic solid simulation shows the work piece, tools and also the fixture. The machining process is shown in real-time and collisions are detected to provide a proven process to the machine.

The package supports programming of:

- 1 milling spindle
- X/Y/Z - axes

The package includes:

- ESPRIT Basis License,
- ESPRIT SolidMill Traditional,
- EMCO Standard-Postprocessor for Siemens, Fanuc or Heidenhain

Customer data for licensing:

Company: _____

Address: _____

Tel.: _____ Fax.: _____

Contact Person: _____

E-Mail: _____

Customer P.O.-No.: _____

ESPRIT Software-Maintenance contract not included.

224 610



Basic license which includes the following ESPRIT modules:

- 2D / 3D Geometry Modeler
- Parasolid solid Modeler,
- NURBS Surface Modeler
- Adaptive Feature Detection
- Tool and Speed and Feed KnowledgeBase
- Universal Post Processing
- Solid Simulation and Verification
- Visual Basic for Applications and ESPRIT API

ESPRIT reads data from the following native formats: ACIS, DXF, IGES, Inventor (* .ipt, * .iam), Parasolid (X_T, X_B), Solid Edge (* .par, * .psm, *. Asm), SolidWorks () * .sldprt, * .sldasm), VDA, STEP, STL

Feature handover of Inventor, Solid Edge and SolidWorks.

EMCO-ESPRIT Package / Milling 3+2 Axes

ATTENTION: SPECIAL PRICE ACCORDING TO QUOTATION ONLY IN CONNECTION WITH A NEW MACHINE'S PURCHASE!

The most powerful CAD/CAM programming software for turning, milling and drilling. In only a few steps you can create the CNC-program from a CAD drawing. A 3D dynamic solid simulation shows the work piece, tools and also the fixture. The machining process is shown in real-time and collisions are detected to provide a proven process to the machine.

The package supports programming of:

- 1 milling spindle
- X/Y/Z - axes
- 2 positioning axes (round axes)

The package includes:

- ESPRIT Basis License,
- ESPRIT SolidMill Production,
- EMCO Standard-Postprocessor for Siemens, Fanuc or Heidenhain
- EMCO standard machine-model simulation

Customer data for licensing:

Company: _____

Address: _____

Tel.: _____ Fax.: _____

Contact Person: _____

E-Mail: _____

Customer P.O.-No.: _____

ESPRIT Software-Maintenance contract not included.

010 590

Basis Training for ESPRIT Milling at Works (3 Days)

3 Tage basic training for ESPRIT milling.
Max. number of participants: 3
Implementation: By PIMPEL at EMCO in Hallein, or at PIMPEL in Austria or Germany
(Other countries on request)

010 595

Basis Training for ESPRIT Milling on Site (3 Days)

3 Tage basic training for ESPRIT milling.
Max. number of participants: 3
Implementation: By PIMPEL at the customer's site within Austria and Germany
(Other countries on request)

Q4Z 003D

3D Machine Data E350

3D machine model inclusive work area in STP-format.

The 3D machine model data will be delivered on data carrier.

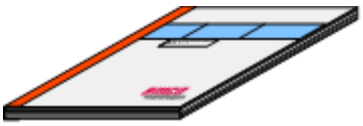
Copyright EMCO GmbH!

Passing on to third parties is not permitted in any case!

Documentation

Standard Languages

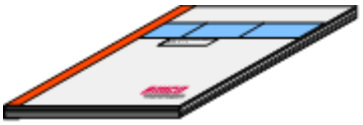
One set included – please confirm one of the standard languages for free.



Instruction Manual E350

DE 6034	German
EN 6034	English
TA 6034	Italian

Additional Languages at Extra Costs



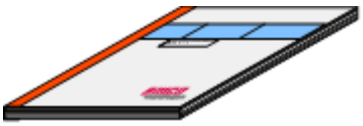
Instruction Manual E350

FR 6034	French
SP 6034	Spanish
SE 6034	Swedich
CZ 6034	Czech
DK 6034	Danish
NL 6034	Dutch
FI 6034	Finnish
HU 6034	Hungarian
PL 6034	Polish
PT 6034	Portuguese
RU 6034	Russian
TR 6034	Turkish
CN 6034	Chinese simple

Elektrische Dokumentation

In der Grundmaschine enthalten

Prospekte



E350 Folder

DE 7180	German
EN 7180	English
TA 7180	Italian
FR 7180	French
SP 7180	Spanish

Packing

ZVZ 341 855	**Standard Packing E350/CM260** Pallet and rolamite cover
ZVP 547 190	**Climate Packing E350/CM260** Pallet, aluminium cover, dehumidifier and miscellaneous
ZVP 301 855	**Wooden Box E350/CM260** Additional protection for critical transportation **Requires Climate Packing ZVP 547 190**

Technical Data of the Machine

Working area		
Travel X	[mm]	350
Travel Y	[mm]	250
Travel Z	[mm]	300
Effective Z-stroke	[mm]	300
Distance spindle nose – table surface	[mm]	120 - 420
Milling table		
Clamping surface (L x W)	[mm]	520 x 300
Max. table load	[kg]	100
5 T-slots according Din 650	[mm]	12
Distance of T-slots	[mm]	45
Milling spindle		
Bearing		Spindle bearing
Front bearing diameter	[mm]	ø 45
Tool holding fixture according to ISO DIN 69871-A		SK30
Draw bolts ISO DIN 69872 (similar to ISO 7388/2 type A)		M12
Tool clamping		Automatic
Milling spindle drive		
Asynchronous AC-motor, power (100% / 40% duty cycle)	[kW]	4,9 / 6,8
Speed range (step less)	[rpm]	150-10,000
Max. torque (100% / 40% duty cycle)	[Nm]	23 / 34
Feed drives (Servo motors)		
Feed	[m/min]	0 – 10
Rapid traverse in X/Y/Z axis	[m/min]	24
Max. feed force	[N]	3000
Positioning accuracy P according VDI 3441 (µm)	[µm]	10
Positioning accuracy Ps according VDI 3441 (µm)	[µm]	4
Tool system (20 tool magazine)		
Tool magazine		Drum turret
Number of tool stations		20
Entry force	[N]	1040
Max. admissible tool weight	[kg]	5
Max. tool diameter (* with free adjacent magazine place)	[mm]	63 (*80)
Max. tool length	[mm]	200
Max. tool length with 5th axis	[mm]	170
Turret indexing time	[s]	2.5
Cutting performance		
Drilling in steel	[mm]	ø 16
Tapping in steel		M10
Lubrication system		
Linear roller and ball screw spindle		Automatic oil-lubrication
Main spindle bearing		Lifetime grease lubrication

Pneumatic		
Supply pressure	[bar]	6
Supply Volumne	[l/min]	50
Compressed air quality (acc. DIN ISO 8573-1)	cleanliness class 4	
Coolant equipment (option)		
Tank volume	[l]	140
Max. coolant velocity at 3,5 bar	[l/min]	15
Max. pressure at 50Hz	[bar]	3.5
Automatic clamping devices (option)		
Pneumatic vice including blow-out device		
Clamping width	[mm]	125
Width of jaws	[mm]	125
C-axis / NC-dividing head (option)		
Resolution	[°]	0.01
Max. speed	[rpm]	44
Max. torque of feed	[Nm]	20
Painting		
Traffic Red	RAL no. 3020	
Cobalt Blue	RAL no. 5013	
Signal White	RAL no. 9003	
Graphite Grey	RAL no. 7024	
Electrical connection		
Voltage supply	[V]	400 ~3/N/PE
Max. admissible voltage fluctuation	[%]	+10/-10
Frequency	[Hz]	50/60
Connection value	[kVA]	9
Main fuse	[A]	20
Dimensions/weight		
Machine dimensions (L x W x H)	[mm]	1600 x 1700 x 2200
Machine weight	[kg]	1970
Machine acceptance		
According Din 8615, part 1		
Sound pressure level		
At following conditions Measuring method: Envelope surface method acc.to DIN 45 635 Measuring point: 1m distance and 1,6m over floor Operating status: max.spindle speed at idle running	[db(A)]	78
Safety rules / standards		
According to EEC / CE rules EN60204 part 1, DIN12100 1/2 EEC machine guiding rules appendix 1		

Control Description Sinumerik 828D

CNC Control / Drives	828D Solution Line / Sinamics S120
	High performance CNC control for ultimate accuracy and machining speed. SINUMERIK 828D and SINAMICS drive and motors are perfectly tailored for state of the art turning machines. Powerful CNC-functions combined with a unique 80bit NANOFP Accuracy (80 bit floating point accuracy from the position control to the internal encoder resolution) enable highest work-piece accuracy at a minimum of machining time. With a flexible CNC programming language and the state of the art ShopTurn machining step programming, single parts as well as large batch series can be programmed and machined with maximum effectiveness. Due to powerful kinematic transformations and a large set of technological cycles, SINUMERIK 828D also meets the demands of high sophisticated machine applications with driven tools and sub-spindle..
Highlights	- Modern, colorful and clear user surface - Technology overlapping programming (turning, milling, drilling, tapping,...) - Contextual help function and support - 3D Graphics and 3D simulation - Animated support graphics - Simple programming via ProgramGUIDE - Calculator function - Program preview, USB-port, etc.
Data in / out	Via CNC full keyboard at the operator panel, USB-PORT and Ethernet
Programming	- SINUMERIK G-code programming with high-level language commands for flexible programming of medium and large batch work-pieces - programGUIDE: technology cycle support for SINUMERIK G-code programs - ShopMill machining step programming for efficient programming of single and small batch work-pieces (CNC option) - Built-in ISO code interpreter - Program manager with readable part program names - Program manager with full access to all media devices
Display	operator panel incl. 15“ Multi-Touch colour monitor
Buffered CNC memory	3 MB
Minimum block cycle time	~ 6 ms
Max. no. of tools/cutting edges	128/256
Program storage	Work piece / part program / sub program directories with alpha-numeric character (max. 24) are used for user friendly and transparent handling.
Sub-program	maximum 8 subroutine levels,
Math. calculation functions	+,-,3,4, cos, sin, tan, e-function, In, =, >,<,[, etc.
System of units	Metric or inch (reversible)
Smallest increment unit	0,001mm (0,00001inch) or 0,001°
Input dimension	incremental or absolute dimension
Feedrate	One to one in mm/rev or mm/min
Override	Spindle override: 50% to 120% Feed override: 0% to 120% Rapid override: 0% to 120%
Feedrate range	0,001mm/rev to rapid traverse rate

Subject to technical modifications.

Threading operation	Longitudinal, transversal or tapered with constant or linear in/decreasing lead, single or multiple threads with angular approach or run-out path.
Synchronous tapping	Taps can be machined with any spindle without compensation holder. Speed and feedrate is fully synchronised.
Work shift	Adjustable or programmable via FRAMES (TRANS,ROT, MIRROR,SCALE)
Spindle speed	Input in rpm or V-const. m/min
Spindle speed limitation	Adjustable or programmable
Coordinate system	Cartesian or polar coordinates and cylinder-coordinates
Tool data	Tool offset selection via T- and D-number (PowerMill: „Random access“ tool management for the tool changer, tool life management,...)
Cutter radius compensation	Programmable via G40,G41,G42
Real-time clock	Time is still set after the machine is switched off.
Machining time	The time between cycle start and end of program (M30) is shown on the control. Machining segments can be timed individually.
Limit stop switch	2 Software limit switches on any axis
Work area limitation	Adjustable for the operator
Spindle pitch compensation	Available for any axes
Back-Lash compensation	Available for any axes
Cylinder interpolation	Simplified due to TRACYL (X/Y/Z)
Face side interpolation	Simplified due to TRANSMIT function - (X/Y/Z))
Helical interpolation	Enables internal and external thread milling.
Program simulation	Graphical CNC simulation in 3D rendering and also in the planes
Block search	Program number, line number and target position can be searched.
Dry-run	Used to test the program without spindle rotation and coolant. The feed override controls any axis movement.
Access protection	Several programs, tool data, work shifts, etc. can be locked via a key switch.
Back-ground editing	Programs can be written and edited while the machine is in production.
Machining from external	Programs can be loaded and executed via a network or USB-Port.
Diagnose function	Continuous condition monitoring due to the integrated diagnose system. Alarms are display in plain text format.
Operating modes	JOG AUTOMATIC MDA – Manual Data Automatik REPOS REFERENCE