

## **Technical specifications HELLER MCi 16.1 - Siemens 840D (MC3 - 2008)**

### **Working dimensions**

Longitudinal stroke	X-axis	mm 630
Vertical stroke	Y-axis	mm 630
Transverse stroke	Z-axis	mm 630

Stroke position along the center of the rotary table	X-axis	mm +315 to -315
Stroke position vertical over pallet clamping surface	Y-axis	mm +100 to +730
Stroke position transverse to the center of the rotary table	Z-axis	mm +100 to +730

### **Control system**

Version	Linear-compact-ball bearing guide	
Size	Longitudinal/transverse axis	45
	vertical axis	35

### **Transmission elements**

Design	precision ball screws
Diameter x pitch	mm $\varnothing$ 40 x 25

### **Feed drive system**

Three-phase servo motors, closed design

### **Feed forces**

X axis	at ED S3 - 40%	N 10000
Y axis	at ED S3 - 40%	N 10000
Z axis	at ED S3 - 40%	N 10000

### **Positioning time with exact stop**

for 50mm	ms 310
for 100mm	ms 370
for 500mm	ms 760

### **Speeds**

Feed speed	in X, Y and Z axis	mm/min	1 - 60000
Rapid traverse speed	in X, Y and Z axis	mm/min	60000
Acceleration	in X, Y and Z axis	m/s <sup>2</sup>	10.0
B-axis (rotary indexing table 360 x 1°)	maximum speed	1/min	40

### **Pallet changing device**

Pallets

Version	special
Clamping surface	according to DIN 55201 A1
Pallet size	mm 400 x 500
Central fixing hole	mm $\varnothing$ 65 H6

Alignment hole	mm	∅ 20 H6
Fastening thread	number	61 x M12
workpiece dimensions		
Swivel diameter in the working area x height	mm	∅ 720 x 850
Maximum dimensions with stroke limitations	mm	∅ 850 x 850
Pallet change accuracy in X, Y and Z axis	mm	0.01
Pallet changing time		
In the case of hydraulic workpiece clamping, the pallet changing time is around 0.5 s longer		

### Positional accuracy of the linear axes X, Y, Z

Measuring method	directly with linear scales		
Position tolerance	Tp according to VDI/DGQ 3441	mm	0.007

### Coolant system

Extended coolant system, internal coolant supply 50 bar / 1300 liters volume and paper band filter KNOLL KF400

### Chip removal

Chip conveyor		
Conveyor speed	m/min	1.5
Ejection height	mm	1200

### Working unit 16000 rpm

Spindle diameter in front bearing	mm	80
Tool holder HSK 63		DIN 69893 form A
Three-phase motor spindle package with hollow shaft motor		

Maximum drive power at the spindle		
at ED S1 - 100% / S6 - 40%	KW	30/40
rpm	1/min	4000

Maximum torque on the spindle		
at ED S1 - 100% / S6 - 40%	Nm	72/95
rpm	1/min	4000

Speed range	1/min	45 - 16000
Ramp-up time to nmax	s	1.8

### Tool chain magazine WZM 160/∅150/320

Magazine places	number	160
Magazine type		chain
Maximum tool length from spindle nose	mm	320

Maximum tool diameter, all spaces occupied	mm	72
Maximum tool diameter	mm	150
Geometry and assignment see tool plate		
Maximum bridge tool	mm	227 x 150
Geometry and assignment see tool plate		
Space coding	selectable	fixed / variable
Maximum loading weight	of each space	daN 3,5
Maximum tool weight		daN 12
Maximum moment of weight of the tool picked up on the gripper		Ncm 1000
Chip-to-chip time according to VDI 2852		
t2.3 for tool weight up to 3 daN	nearest tool	2,8 s
t1(160) for tool weight up to 3 daN	furthest tool	8,5 s
t2.3 for tool weight up to 12 daN	nearest tool	4,0 s

### Rotary table

Division	Grad	360 000 x 0,001
Indexing accuracy Tp	according to VDI/DGQ 3441 Winkel-s	10
Maximum clamping weight	daN	500
Maximum tangential torque (clamped)	Nm	3500
Maximum tilting moment	Nm	8000
Maximum Swing time (without clamps)		
for 45°	s	0,7
for 90°	s	1,0
for 180°	s	1,4
Round milling torque	at ED S3 - 40 %	Nm 300

### Additional features

Renishaw probe with tool shank and probe insert  
Infrared probe receiver  
Control panel at the tool storage area with terminal

2 pallets in the basic machine with 24 x M16 instead of 61 x M12

working area flushing  
CFC-free coolant cooler  
Disc blow-off device  
feed force indicator

Process-parallel drill breakage control  
Tool set-up during the spindle usage time  
Tool pick-up system from the pallet

### 5th Axis version

Drive unit 5th axis and automatic coupling device in the work area roof  
5th axis in coupled design with clamping plate D 450 and EROWA zero clamping system  
Special pallet including hydraulic connection element

5-fold media interface for workpiece clamping 200 bar hydraulic pressure in the work area for FMS operation  
Control for hydraulic switching function in the working area with 4th line

### Installation data

Machine weight, approx.	daN	9000
Space required for the basic machine		
Length x width x height, approx.		6.2 x 3.4 x 3.4 m
Maximum total operating power		
with a ratio of peak to off-peak times of 60% to 40%	kVA	69
Of which maximum power share of the coolant system	kVA	31
Mains connection		400 V - 50 Hz
Voltage Tolerance		-10% to +10%
Control voltage	V	24
Ambient conditions for electrical equipment		
according to EN 60204-1 section 4.4		
Back-up fuse	A	100
Supply line	mm <sup>2</sup>	4 x 35
Compressed air supply		
Pressure	bar	4.5 to 6.0
Purity	µm	<40
Dew point	°C	+3
Compressed air consumption	Nm <sup>3</sup> /h	20
Permissible ambient temperature	°C	+10 to +45