

Fig. 3.7 Protective enclosure

3.3 Technical specifications

Type overview	HPM 600U	axes	5
	HPM 800U	axes	5
Work area	X-axis	mm	HPM 600U: 650
		mm	HPM 800U: 800
		mm	
	Y-axis	mm	HPM 600U: 650
		mm	HPM 800U: 800
		mm	
Z-axis	mm	550	
A-axis	°	+91 - (-121)	
C-axis	°	n × 360	
Feed drive	Feed force max. X-/ Y-/ Z-axis	kN	6/ 6/ 6
	Feed rate X-/ Y-/ Z-axis	m/min	HPM 600U: 45
		m/min	HPM 800U: 45
	Rapid traverse X-/ Y-/ Z-axis	m/min	HPM 600U: 45
		m/min	HPM 800U: 45
Acceleration X-/ Y-/ Z-axis	m/s ²	6	
Quality characteristics	in accordance with DIN/ ISO 230-2:1997 at 20° C (+4°/-2° C) with Δs (1 h) = 0,5° C and Δs (24 h) = 2,0° C		Tolerances
	Positioning uncertainty A		
	X-/ Y-/ Z-axis	µm	8/ 8/ 8
	A-/ C-axis	"	14/ 10
	Positional deviation error M		
	X-/ Y-/ Z-axis	µm	5/ 5/ 5
	A-/ C-axis	"	8/ 5
	Backlash B		
	X-/ Y-/ Z-axis	µm	4/ 4/ 4
	A-/ C-axis	"	5/ 4
	Repetition accuracy R+		
	X-/ Y-/ Z-axis	µm	5/ 5/ 5
A-/ C-axis	"	8/ 5	
Repetition accuracy R-			
X-/ Y-/ Z-axis	µm	5/ 5/ 5	
A-/ C-axis	"	8/ 5	
Machine control system	CNC control system		Heidenhain iTNC 530

Tool dimensions

- depending on:
- Tool spindle
- Tool magazine
- Laser measuring system



More detailed information about **tool limit masses** can be found in the **instructions from the tool spindle manufacturer**.

Balance quality

in accordance with ISO 1940-1:2003
 for speeds up to 30000 min⁻¹ G 6.3
 for speeds from 30000 min⁻¹ G 2.5

**Tool spindle
20000 min⁻¹**

M170 HSK-A63

Speed max.	min ⁻¹	20000
Spindle taper		HSK-A63
Ø Tool max.	mm	100
Lenght	mm	250
Power at S1/ S6 (40% ED, t _s = 2 min)	kW	30/ 39
Torque at S1/ S6 (40% ED, t _s = 2 min)	Nm	64/ 84
Through-spindle cooling TSC		—/ ✓
Speed range	min ⁻¹	0 - 20000
Lubrication		Oil-Air

**Tool spindle
28000 min⁻¹
CoolCore**

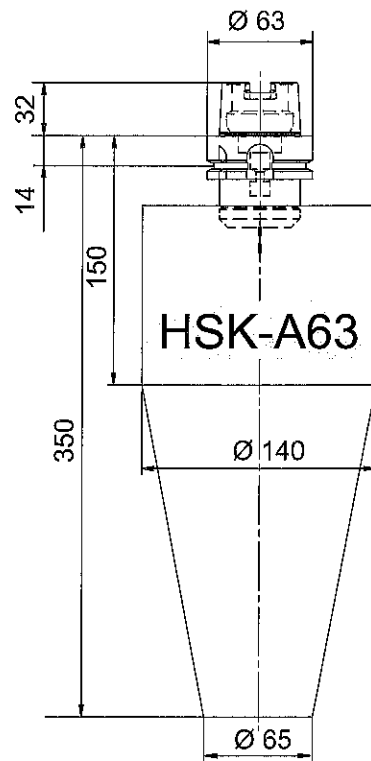
HPC170-CC HSK-A63

Speed max.	min ⁻¹	28000
Spindle taper		HSK-A63
Ø Tool max.	mm	50
Lenght	mm	250
Power at S1/ S6 (40% ED, t _s = 2 min)	kW	28/
Torque at S1/ S6 (40% ED, t _s = 2 min)	Nm	28.2/
Through-spindle cooling TSC		—/ ✓
Speed range	min ⁻¹	0 - 28000
Lubrication		Oil-Air

Cooling unit CoolCore

Size	mm	650 × 505 × 1175
Weight	kg	90
Cooling performance	kW	2.6
Flow rate	l/min	3.5
Refrigerant		R404a
Refrigerant quantity	kg	1.1
Coolant (initial filling)		Motorex COOL-CORE READY

Limiting tool dimensions for
automatic tool change
[mm]



PRI000701-55

Tool magazine CT60	Tool spindle taper		HSK-A63
	Number of tool magazine pockets		60
	Chip-to-chip time as per VDI 2852	s	7
	Tool change time	s	2.5
	Tool length max.		
	HSK-A63	mm	350
	Ø Tool max. without available adjacent positions	mm	75
	Ø Tool with available adjacent positions	mm	140
	Weight max. of all tools	kg	240
	Weight max. of single tool	kg	8
	at n_{max} with tool spindle 30000 min^{-1}	kg	3
	at n_{max} with tool spindle 20000 min^{-1}	kg	8
	at n_{max} with tool spindle 15000 min^{-1}	kg	8
Tool magazine DT30	Tool spindle taper		HSK-A63
	Number of tool magazine pockets		30
	Chip-to-chip time as per VDI 2852	s	7
	Tool change time	s	< 5
	Tool length max.		
	HSK-A63	mm	350

Ø Tool max. without available adjacent positions	mm	75
Ø Tool with available adjacent positions	mm	140
Weight max. of all tools	kg	120
Weight max. of single tool	kg	8
at n_{max} with tool spindle 30000 min ⁻¹	kg	3
at n_{max} with tool spindle 20000 min ⁻¹	kg	8
at n_{max} with tool spindle 15000 min ⁻¹	kg	8

Laser measuring system	Ø Tool max.	mm	120
	Ø Tool min.	mm	> 0,6
	Tool length max.	mm	350
	Tool length min.	mm	0
	Laser type	nm	630 - 700
		mW	< 1
	Laser class		2
	Repetition accuracy 2σ	µm	± 0.2

Rotary tilting table	Rotary axis A		
	Rotation range	°	+91 - (-121)
	Rotary speed	min ⁻¹	S1: 25
	Angular acceleration	rad/s ²	20
	Torque	Nm	S1: 1290
	Clamping moment	Nm	5600
	Tilting axis C		
	Tilt range	°	n × 360
	Tilt speed	min ⁻¹	S1: 35
	Tilting acceleration	rad/s ²	30
	Tilting moment	Nm	S1: 780
	Clamping moment	Nm	2800

Table load	Fixed table with clamping system max.		
	with 5-axis operations	kg	500
	with 3-axis operations	kg	800
	Tilting rotary table with clamping system max.		
	with 5-axis operations	kg	500
	with 3-axis operations	kg	500/ 800

Clamping systems	T-slots		
	T-slots parallel	mm	630×500
		mm	Ø 500
		mm	Ø 630

T-slots radiated	mm	Ø 500
	mm	Ø 630

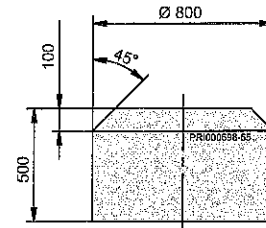
Pallet system

DIN hole pattern	mm	500×500
	mm	630×500

Workpiece dimensions max. mm

Automatic pallet change

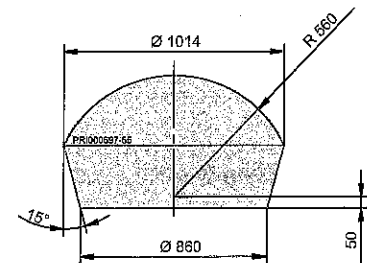
Dimensions allow for collision-free milling.

**Manual workpiece change**

(T-slots, pallet system)

Caution!

Collisions with machine parts and tools are possible.

**Belt filter system**

Capacity	l	600
Pump pressure (External/ Internal cooling system)	bar	2.5/ 18 - 70
Pump performance (External/ Internal cooling system)	l/min	30/ 20
Flow capacity/ Filter performance	l/min	50 - 70
Transfer volume	l	60

Cooling unit

Size	mm	750 × 555 × 1380
Weight	kg	145
Cooling performance	kW	8
Flow rate	l/min	30
Refrigerant		R404a
Refrigerant quantity	kg	1.75
Coolant (initial filling)		Motorex COOL-CORE READY

Pneumatics

Compressed air temperature		Ambient temperature of the machine
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Compressed air quality		ISO 8573.1:2001
synthetic oil		Class 5.7*.2
mineral oil		Class 5.7*.4
		* free of condensate
Air quantity (connection value)	l/min	800
Connection	"	R 1/2
Ø Connection line Main compressed air	mm	12.5
Operating pressure for main compressed air	MPa	0.6 + 0.05
	bar	6.0 + 0.5

Electrical connection

Observe locally applicable requirements in addition to the values listed here.



Connected load	kW	HPM 600U: 55 HPM 800U: 55
Cos Φ		0.9
Back-up fuse	A (time-lag)	80
Connection cross-section	mm ²	25
Operating voltage	VAC	3 × 400 + PE
	50 Hz	± 10% at idle and full load
	60 Hz	+10%/ -1% at idle and full load
Frequency	Hz	50/ 60 ± 2%
Control voltage	VDC	24
System of protection for control cabinet and control console		44

Noise emission

Noise measurement in accordance with		EN ISO 11202
Emission sound pressure level (L _{pA})	dB(A)	69
Uncertainty K _{pA} (ISO 4871)	dB	4

Wear hearing protection at sound levels of more than 80 dB(A)!



Minimum-quantity cooling Recommended lubricants lubrication system

Natural 77
ILC Lubrificazione
www.ilclube.com

Paint finish

Standard color

Texture finish
NCS 1000-N/ 3500-N/
8500-N/ 0580-Y60R
(machine, cab enclosure,
accessories)

Mass	Machine	kg	15300
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Units of measure	Basic and derived units of measure from the international system of units SI.		
	Unit of measure, international		m, s, kg, A, mm, V, W, Hz, N, °C, dB, min ⁻¹ , m/s ²
	Unit of measure, national		m, s, kg, A, mm, V, W, Hz, N, °C, dB, rpm, m/s ²

If the actual values exceed the permitted tolerance values listed, please inform GFAC Service in writing.