

SAUER LASERTEC 65 Shape

Basic machine

L-A0396*	LASERTEC 65 Shape Universal Milling Machine 735 mm (650 mm) x 650 mm x 560 mm / 28.9 in (25.6 in) x 25.6 in x 22 in Main drive: Motor spindle 10,000 rpm 13 kW / 17 hp (40% duty cycle); 9 kW / 12 hp (100% duty cycle) Incl. spindle taper HSK-A 63 to DIN 69893 Vertical headstock Tool change system double gripper Chain magazine with 30 magazine pockets for HSK-A 63 NC swivel rotary table Table plate C-axis: d 650 mm / 25.6 in, integrated in rigid table 800 mm x 650 mm / 31.5 in x 25.6 in Permissible load: 600 kg / 1,323 lbs Rotation C axis: 360° Chip trough with integrated coolant tank 500 l / 132 gallon 3D CNC control Pick up laser head for laser engraving and surface texturing. Q-switch fibre laser with 100 W average power 3 axis precision scanner with flat lens and 170 mm focal length scan field size max. 100 mm x 100 mm CCD camera for work piece positioning Extractable touch probe for depth measuring Picked up by HSK spindle adapter, manual change LASERSOFT 3D system for laser engraving and laser shaping 1 x Laser safety window (double window)
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Control

L-B0060*	3D control Siemens 840D solutionline operate with LASERSOFT 3D for laser ablation
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L-D-GB	Display English
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Automation / measuring / control

L-K2200*	Infrared measuring probe Type Renishaw PP60 optical (OMP 60) for HSK-63 tool holder
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- L-K2240 3D quickSET
Tool kit for control and compensation
of the cinematic accuracy of
5 axis machine configurations
(only together with option
measuring probe)
- L-K0376* MPC Machine Protection Control
Machine protection by quick shutdown
- L-K0206 Signal lamp 4-colour
Red: general error
Yellow: intervention necessary
Green: automatic mode
Blue: set-up mode

Options of the CNC-control SIEMENS

- L-H0109 Electronic handwheel Siemens 840D
- L-L0050 Safety package for power failure:
Voltage control with
fast deceleration trigger
Uninterrupted Power Supply (UPS)
for control
Display of last executed program number

General options

- L-H0038* Operation mode 4
Extended manual intervention
- L-T0007 Set of lubricants

Documentation

- L-EP-GB Circuit diagram English
- L-D1-GB First documentation Englisch

Options laser machining

- L-K0072 Additional laser safety window
double window, two windows à
297 mm x 210 mm / 11.6 in x 8.2 in
- L-K0156* Extraction for exhaust air mode
Dust extraction unit with filter
elements and automatic filter cleaning
- L-B0070* LASERSOFT 3D-TEXTURE
Software package for the generation of
programs for the texturing of surfaces.
Automatic creation of 5- axis CNC and
laser programs from 3D bitmaps.
Incl. collision detection and avoidance

L-B0054* Laser Marking
Marking directly at the machine:
Preset of text and attributes as well
as laser- and marking parameters.

Attachment

Technical Description

L-A0396

Universal milling and laser ablation machine in monoBLOCK construction LASERTEC 65 Shape

Traverse range:	X = 735 mm / 28.9 in (longitudinal) X = 650 mm / 25.6 in (longitudinal, with option B-axis) Y = 650 mm / 25.6 in (transverse) Z = 560 mm / 22 in (vertical)
Main drive:	AC motor, digitally controlled
Integrated motor spindle	
Speed range:	max. 10,000 rpm
Spindle taper:	HSK-A 63
Tool clamping:	Compressed air controlled tool clamping for draw bolt DIN 69872 Form A or B
Acceleration:	approx. 2,5 s
Deceleration:	approx. 2,5 s
Drive:	13 kW / 17.4 hp (40% duty cycle) 9 kW / 12.1 hp (100% duty cycle)
Spindle torque:	83 Nm / 61 ft lbs (40% duty cycle) 57 Nm / 42 ft lbs (100% duty cycle)
Spindle bearing inside diameter	front: 80 mm / 3.15 in rear: 55 mm / 2.16 in
Bearing:	O-arrangement
Bearing type:	hybrid bearing
Coolant circuit (liquid cooling)	
Clamping force:	8 kN / 1.800 lbs
Note:	Safety reasons and frequency of the complete spindle unit (spindle with tool) require consideration of size and balancing quality of the tools for machine with motor spindle. Balancing quality G 6.3 for up to 18,000 rpm Balancing quality G 2.5 for more than 18,000 rpm
Vertical milling head:	
Tool changer:	Program controlled tool change into the machining spindle, tool changing system with vertical chain magazine basic, integrated in machine cabin, separated from the machining area Fixed pocket coding changer with double gripper

30 magazine pockets HSK-A 63 (standard)

Permissible tool diameter (diameter / length)
for chain magazine basic HSK-A 63

for occupied adjacent pockets:	d 80 mm (3.15 in) / 315 mm (12.4 in)
for free adjacent pockets:	d 160 mm (6.3 in) / 315 mm (12.4 in)

Permissible tool length with use of Blum laser	d 80 mm (3.15 in) / 315 mm (12.4 in)
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Note: all length data from spindle nose

Max permissible tool tilting momentum HSK-A 63: (related to centre tool gripper slot)	12 Nm / 8.9 ft lbs
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Permissible tool weight	8 kg / 17.6 lbs
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Permissible total weight of tools in magazine:	
30 tool pockets	80 kg / 176 lbs
60 tool pockets	160 kg / 352 lbs
90 tool pockets	240 kg / 529 lbs

Magazine loading	manual, single loading with hand lever
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Chip-to-chip time:		30 pockets	60 pockets	90 pockets
HSK-A 63:	t2/t3	**	**	**
	t1	**	**	**

**on request

(acc. to VDI 2852, given values t2/t3, tolerance + 10%, safety and retraction strategy, collision monitoring not considered, tool weight SK40: 3 kg / 6.6 lbs)

Note:

Restrictions of tool length and diameter, workpiece dimensions, traverse range of linear, rotary and swivel axes may arise depending on machine configuration (axis arrangement), position of swivel rotary table and max. tool and workpiece dimensions. For data see dimensioned drawing machining area / traverse range: on request.

NC swivel rotary table	
clamping surface C-Axis:	d 650 mm (25.6 in)
integrated in rigid table:	800 mm x 650 mm (31.5 in x 25.6 in)
table plate C-Axis:	
number of T-slots:	1x 14 H7 / 0.55 in (alignment groove, table centre) 8x 14 H12 / 0.55 in (clamping grooves)
bore pattern:	8x thread M12
distance between T-slots:	63 mm (2.48 in)
centre bore:	d 50 mm H6(1.97 in)
swivel angle:	
to the working spindle:	+120°
from working spindle:	-120° from 0° position (horizontal)

turning range C-axis:	360°
torque swivel axis:	2.640 Nm (1,950 ft lbs) (100 % duty cycle)
holding mom.swivel axis:	2.640 Nm (1,950 ft lbs) (100 % duty cycle)
holding mom.swivel axis: (hydraulic clamping)	6.200 Nm (4,570 ft lbs) (100 % duty cycle)
torque rotary axis:	2.030 Nm (1,500 ft lbs) (100 % duty cycle)
holding mom. rotary axis:	2.030 Nm (1,500 ft lbs) (100 % duty cycle)
feed rotary axis:	14.400 °/min
rapid traverse rotary axis:	40 1/min
feed swivel axis:	7.200 °/min
rapid traverse swivel axis:	20 1/min
input and display resolution:	0,001°
positional uncertainty:	rotary axis (C) P = 7 arc sec
(according to VDI/DGQ 3441)	swivel axis (A) P = 9 arc sec
max. table load (table centre):	600 kg (1.323 lbs)
max. permissible moment of inertia:	rotary axis: 48 kgm ² swivel axis: 70 kgm ²
max. workpiece dimensions:	
diameter clampable:	840 mm (33.1 in)
diameter machinable:	650 mm (25.6 in)
height:	500 mm (19.7 in)
Feed drive linear axes:	digitally controlled AC motor and recirculating ballscrew spindle in each linear axis
Maximum feed speed:	X-, Y-, Z-axis 40,000 mm/min / 1,575 in/min
Rapid traverse:	X-, Y-, Z-axis 40 m/min / 1,575 in/min
Maximum feed power:	X-axis (longitudinal) 7 kN / 1,573 lbs (100% duty cycle) Y-axis (transverse) 13 kN / 2,922 lbs (100% duty cycle) Z-axis (vertical) 10 kN / 2,250 lbs (100% duty cycle)
Guideways:	roller guideways in all linear axes
Linear path measuring systems:	direct, photo-electrical resolution 0.001 mm / 0.000039 in
Temperature compensation:	electronical, temperature sensor
Machine accuracy:	P = 0.008 mm / 0.0003 in (according to VDI/DGQ 3441) X-, Y- and Z-axis

All values apply to standard delivery without export restrictions.
All machines with export restrictions are built and delivered with
accordingly higher values.

Precision depends to a large extent upon external thermal influence.
The stated accuracy is achieved in the temperature range 20° +/- 2°.
Direct sunlight, strong draughts, vibrations from other units and
build-up of heat are to be avoided.

Central lubrication: automatic minimum lubrication for

	roller guideways
Electrical cabinet:	integrated in the machine, with ventilator/filter mat
Heat exchanger:	for main spindle integrated in the machine
Cabin, chip trough:	full-protection cabin including roof with sliding door, large safety glass windows
Note:	The safety glass panes are exposed to natural wear and aging due to ambient and machining influences (UV, coolant, chips, etc.). Low-wear laminated glass is available as option.
Protection and operating equipment:	according to EU guidelines, straight-line steel cover for longitudinal and vertical guideway with deflector for chip removal and cleaning.
Chip removal:	manual, from the chip trough
Coolant supply:	Multi-jet strip at vertical spindle head, switchable from coolant to air (max. 6 bar / 90 psi) (4 water jets, 4 air jets) pump capacity: 40 l/min / 10.4 gallon/min at 1 bar / 14.5 psi (theoretical pump performance) chip rinsing tool changer flap coolant tank capacity: approx. 500 l / 132 gallon
	For machine operation with large chip volume the options "production package" or alternative "scraper flight conveyor" and "chip rinsing in cabin door" are strongly recommended.
	For productive machining, especially of light metals, or machining of non-metallic materials, the option "production package" are strongly recommended.
Note:	Only use coolant according to the machine-specific recommendations of the manufacturer! Machining of materials containing magnesium or the use of oil as lubricant or emulsions with an oil proportion > 15% can lead to fire or explosion. An additional safety package and a special coolant unit are required (on request). Please contact your machine supplier. The ignition point of the coolant must be above 140° Celsius.

Machine lamp: Planon-Light, 24V DC

Working hour recording: for "machine on" and "program running"

Colour (synthetic enamel):

Machine column basic machine
Cover sheets/cabin front, left side
and electrical cabinet, base
peripheral equipment:

titanium grey

Chip conveyor:

titanium grey / calcite white

Front door inside/outside

calcite white

Machining area:

calcite white / titanium grey / stainless steel

Installation dimensions and weight:

Space requirement machine incl. operation and maintenance: see dimensioned drawing

Weight with rigid table and tool changer

30 pockets

60 pockets

90 pockets

appr. 7,500 kg

appr. 7,600 kg

appr. 8,200 kg

appr. 16.500 lbs

appr. 16.800 lbs

appr. 18.100 lbs

Connection data:

basic machine with motor spindle

10,000 HSK-A 63

14,000 HSK-A 63

18.000/24.000 rpm

In max. at 100% duty cycle:

38 A

65 A

power input at 100% duty cycle:

20 kVA

45 kVA

required net fuse:

50 A/400 V

80 A/400 V

required short circuit

performance of the net:

1.1 MVA

2.15 MVA

basic machine with internal coolant supply 20 bar/40 bar / 290 psi/580 psi

and motor spindle

10,000 rpm

14,000 HSK-A 63

18,000/24,000

In max. at 100% duty cycle:

48 A

75 A

power input at 100% duty cycle:

34 kVA

52 kVA

required net fuse:

63 A/400 V

80 A/400 V

required short circuit

performance of the net:

1.1 MVA

2.15 MVA

basic machine with motor spindle; swivel rotary table direct drive

10,000 rpm

14,000 HSK-A 63

18,000/24,000

In max. at 100% duty cycle:

on request

on request

power input at 100% duty cycle:

on request

on request

required net fuse:

on request

on request

required short circuit

performance of the net:

on request

on request

basic machine with internal coolant supply 20 bar/40 bar / 290 psi/580 psi, motor spindle; swivel rotary table direct drive

	10,000 rpm	14,000 HSK-A 63 18,000/24,000
In max. at 100% duty cycle:	on request	on request
power input at 100% duty cycle:	on request	on request
required net fuse:	on request	on request
required short circuit		
performance of the net:	on request	on request

Due to the backfeed of energy and the possibility of short-term operation currents may occur which require the net fuse.

operating voltage: 3/N/PE/400 V/230 V 50 Hz

max. permissible deviation: + 10% / - 10%

control voltage: 24 V DC

Electrical connection: Power supply for our machines has to meet the requirements of standard EN 50160 "Voltage characteristics of electricity supplied by public distribution systems"
For electrical installation please ensure that EN 60 204, part 1, point 6.3.3 "protection for automatic switch off of power supply" and point 18.2 "Control of conditions for protection by automatic switch off of power supply" is observed.
The recommended short-circuit performance must be available at the power supply of the machine.

It is prohibited to connect the machine to a line circuit with a FI protective switch, see EN 50178, point 5.3.2.3 (before VDE 0160, Pkt. 5.5.3.4.2).

The machine has to be connected to a net with 3 phases (L1, L2, L3), neutral wire (N) and Protective Earth (PE)

Due to the measures of electromagnetic compatibility, the machine has leakage currents higher than 3.5 mA and must be connected firmly. Apart from that, one of the following measures according to EN 50178, point 5.3.2.1 (before: VDE 0160, extract 5.5.3.4.1 and 6.5.2.1) has to be performed:

- a) Protective conductor profile at least 10 mm² Cu (copper) or
- b) Control of the protective conductor by means of a device, which makes sure that in case of an error the machine is switched off self-acting or
- c) Installation of a second conductor, electrically parallel to the protective conductor, using separate clamps. This conductor alone must meet the requirements of protection conductors acc. to paragraph 543 of the Harmonization Document (HD) 384.5.54 S1 for protective wires (before: DIN VDE 0100, part 540)

For detailed information on machine connection see SAUER installation guidelines.

Required air pressure: 6 bar / 90 psi

Average air consumption: ca. 20 m³/h / 710 ft³/h (basic machine)

	ca. 70 m ³ /h / 2,472 ft ³ /h (with option minimum lubrication, air blast internal/external)
Machine transport:	crane (using hanging gear) or fork-lift truck
Transport hanging gear:	in standard delivery
Machine mounting elements:	3 wedge blocks (height adjustable)
Installation place:	Space requirement, surface conditions ambient conditions according to SAUER information in the machine documentation as well as transport and installation instructions.
permissible ambient temperature:	+15° Celsius up to +35° Celsius
permissible relative humidity:	max. 75% at 20° Celsius
Note:	with difficult ambient conditions or ambient temperatures of up to 40° Celsius the option P-G0054 is absolutely necessary.
Installation of DMG-Netservice:	at customer's site
Documentation Germany:	1 x wiring diagram paper DIN-A4 (D) 1 x wiring diagram CD (D) 1 x machine manual (D) 1 x control manual paper (D)
Documentation EU: (excl. Germany)	1 x wiring diagram paper DIN-A4 (D,E,F or I) 1 x wiring diagram CD (D) 1 x machine manual (D) 1 x control manual CD (D) 1 x machine manual (D,E,F or I) 1 x control manual paper (D,E,F or I) 1 x control manual CD (D, E, F, or I)
Documentation Export: (excl. EU)	1 x wiring diagram paper DIN-A4 (D,E,F or I) 1 x wiring diagram CD (D,E,F or I) 2 x machine manual (D,E,F or I) 1 x control manual paper (D,E,F or I) 1 x control manual CD (D, E, F, or I)
Available languages:	German (D), English (E), French (F), Italian (I), further languages on request
Laser Specification:	
Laser type	Ytterbium Fibre Laser, pulsed
Average Power:	100 W
Wave lenght:	1064 nm
Beam Quality	M ² < 2
Scanner	Highly dynamic with 3 optical axis
Scan field	Max. 100mm x 100mm
Focal length	170 mm

Laser head for:

- Laser marking
- Laser engraving
- Laser surface texturing

Picked up by HSK milling spindle, manual change

LASERSOFT 3D software for laser engraving

Separate Electrical cabinet with laser source and laser control and laser chiller.

Swivelling arm with touch screen operation panel for laser shaping.

Optical components are tear and wear parts and are therefore excluded from the warranty like all tear and wear parts

Attention:

For an optimal programming with LASERSOFT 3D TEXTURE following hardware-/ software requirements are necessary (NOT included in scope of delivery):

Hardware:

External Pc for programming of the textures:

- Multiprocessor, multicore-system e.g. XEON X5670 (six-core)
- 64 Bit system software
- Windows 7 or 8
- >16 GB memory (highspeed)
- 2 high speed harddisks: 2x 512 GB, 15000 RPM;
recommended: 1x Solid State Disk
- fast graphic cards, capable for
OPENGL: OPENGL 4.0, Speicher > 1GB
- Preference: NVIDIA Quadro FX4800, 1.5GB or better GigE Ethernet
- Recommended: Monitor 30" with WQXGA + resolution
(2560 x 1600 Pixel) -> or 2 x 23" Monitor

Software:

- Software to generate mapping data:
Autodesk Maya 2011 x64
- Software for editing BMP-data:
Photoshop CS5 x64 (Adobe)

Machine quality:

During manufacture the machine undergoes several intermediate and a final test.
After final assembly a test certificate is made out that is given to the customer upon machine delivery.

Design and delivery of the machine incl. documentation and acceptance according to SAUER standard, in compliance with the fundamental safety and health requirements of the EU machine guideline.
Customer-specific delivery and acceptance conditions have to be clarified separately.
Offer on request.

Subject to technical changes and price adaptations.

L-B0060

3D control Siemens 840D solutionline operate

Operator panel:

ERGOline

Hardware:	32-Bit-Multiprozessor system decentral bus concept (MPI, industrial Ethernet, Profibus, ASI-Bus) NCU 720.2 Memory 1 GByte DRAM; 1 MB SRAM PLC: AS 317-2DP with Profibus
Screen:	19" TFT flat screen resolution 1,280 x 1.024 pixels
Keyboard:	CNC keyboard, Gildemeister control panel
DMG Softkeys: or operation sequences.	freely programmable keys for frequently selected screen contents
DMG SMARTkey	personalized operator authorization with corresponding access rights for control and machine.
Block processing time:	2.5 ms
Number of part programs/ workpieces in memory	750
Number of tools/cutters	600 / 1500
Look Ahead Function:	direction changes are checked by the control at least 99 NC-blocks in advance. Feed speed is automatically adapted to the dynamics of the machine.
Number of axes:	5 out of 5 linear interpolating, digital (Export version: 4 out of 5) 2 circular interpolating, helical interpolation,
Data memory:	CF card with min. 2 GByte user
Programming:	ShopMill and DIN/ISO in HMI SL-standard user interface
Compatibility	Disparties in the user interface, volume of cycles and Programming, as well as no secured programm compatibility with the previous Siemens 840 D solutionline up to SW 1.5
Cycles:	peck drilling, geometry calculation, tapping with/without compensation chuck, reaming, boring, bore patterns, slot milling, rectangular and circular pockets, line by line milling of plane surfaces with ShopMill manufacturer cycles (special machining cycles of the manufacturer) can be integrated, measuring cycles
Parameter programming:	mathematical functions: =,+,-,*,/,sin a, cos. a, logical connections: (=,<>, >, >=, <, <=) parenthesis functions, tana, arcs sin, arcs cos, tan, an, en, ln, log, absolute value of a figure, constant p, negration, cancel of numbers before

	and behind the semicolon, calculation parameter, global user parameter (GUDs), local user parameter (LUDs)
Program structure:	Sub programs, program part repetition, conditional jumps to labels, program grouping
Co-ordinate system	Cartesian, polar
Co-ordinate transformations:	movement, rotation, mirroring, measure factor TRAORI
Position details:	nominal/actual value, residual value for straight line and circles rectangular co-ordinates, absolute measures, display and input in mm or inch
Contour approach and departure:	via straight line: tangential or vertical via circle, via helix
Tool table:	600 tools per table
Constant speed:	related to tool centre contour related to cutting edge
Swiveling of machining plane:	Standard for machines with NC swivel rotary table or universal milling head with controlled swivel axis
Re-positioning:	After emergency off or power fault easy tool removing with swivelled axis out of bore etc. (limit with tapping tools and programmes without G7)
TRAORI:	Offset of the swivel axes is compensated so that the position of the tool tip to the contour is maintained. (Standard for universal milling machines or universal machining centres; option for horizontal machining centres)
Free contour programming:	contour programming (in ShopMill and standard DIN/ISO)
Easy operate:	set-up and setting of reference point with menu technique in HMI SL
Manual operation:	easy input and running of cycles with take-over of position in HMI SL
Parallel operation:	Programming during machining of another program
Point table:	programming with points out of the point memory (max. number of points is restricted by capacity of random access memory)
Programming support:	graphical support for programming in HMI SL, dialogue with graphical support
DMG MACHINEcheck:	Application with maintenance reminder function.

Optionally: Maintenance training to your DMG machine.
Optionally: DMG Service Agent with the functions Notification, instruction and support for spare part ordering

Accuracy:	TPC (Table Precision Control) for determination and compensation of the NC rotary table pivot. Only with option "Measuring probe". HPC (Head Precision Control) for determination and compensation of head offset in the B axis. Only with option "Blum laser"
Programming graphics:	during contour programming the NC blocks are drawn (2D line drawing).
Machining graphics:	synchronous graphics during machining in ShopMill)
Machining time:	display of actual machining time in the standard interface
Re-enter into the NC-Program:	Re-enter to any block in the program and approach of the calculated nominal position to continue machining program: interruption, contour departure and re-approach
Zero point tables:	zero point tables with 99 zero points inclusive text
Pallet and program management:	not in standard, only on request
Network connection:	Ethernet interface in electrical cabinet of machine: Fast Ethernet 10/100 BaseT (100 mBaud) Network protocol: TCP/IP USB interface in front plate USB 2.0
MCIS DNC Machine (SINDNC):	Data transfer between network and SINUMERIK 840D
DMG AUTOshutdown (Standard):	Intelligent Standby-control for avoidance of unnecessary absorption of energy by time controlled switch-off of not used aggregates. The times and switch-off conditions can be adjusted individual per machine with a easy to use NC-screen by the customer for his production.
Additional Options:	on request

L-K2200

Infrared measuring probe Renishaw OMP 60

The measuring probe is changed out of the tool magazine automatically into the working spindle

Functions:

- Compensation of workpiece alignment by positioning of the NC rotary table
- Determining circle centre and radius of a bore or of a cylinder
- Compensation of zero point movement
- Modification of tool compensation
- Checking of workpiece tolerances

Scope of supply:

- Measuring probe with sending and reception unit; optical axis 70°

- Spindle taper
- probe insert (ball type)
- 9 V battery

Note:

The NC macros required for automatic operation are not included in the scope of supply.

L-K0376

MPC Machine Protection Control

Preventive protection by vibration sensor (SDS) at the spindle:

Machine protection by quick shutdown

Variable Tool- and Process-specific shut down limit

Process control with bar display in the machine control

Bearing condition diagnosis of the spindle

Note: No warranty in case of collisions

L-H0038

Operation mode 4 "Process monitoring in the production"

Manual intervention with open doors of machining area without laser operation.

Release after check list has been filled in.

Machining of workpiece programs with open doors of machining area (without laser operation) without pressing the enabling keys. Together with the order confirmation the customer receives a check list incl. safety instructions and description of the individual operation modes. Necessity of the use of operation mode 4 "process monitoring in the production" has to be proven with the check list.

The check list has to be filled in completely, signed legally binding and returned to SAUER GmbH.

Note:

Only after return of the filled-in and legally signed check list operation mode 4 is released for delivery.

L-K0156

Extraction of the whole working area (for outlet air mode).

Compact dust separator with 2 filter units Category C, type Meltblown

Dust class M (formerly BIA- category C)

Clean gas emission normally $< 0,2 \text{ mg/m}^3$ (depending on type of dust)

Environmentally product - recyclable

Filter housing

- integrated spark pre-separator
- integrated transport carriage requirements

Cleaning

- filter surface: approx. 20 m²
- automatic air filter cleaning using compressed air, depending on difference pressure.
- one way dust collection holder with 60l volume. Must be changed regularly.
- Air volume per cleaning: 85NL / impulse
- Working pressure: 4.5 bar
- max. pressure: 6.0 bar
- Integrated filter watchdog
- Supports for ducting

Ventilator module

- Air volume eff.: approx. 1000 m³ /h
- free available vacuum: approx. 100 da Pa

Dimensions:
Space requirement: 1200 mm x 1050mm (47" x 41")
Height: ca. 2000 mm (79")

When machining cancer-causing hazardous materials it is forbidden to lead the cleaned air (output of the extraction) into closed indoors. Rather it has to be led outdoors via piping systems.
EU Directive 2006/42 EG applies, emission of hazardous substances 1.5.13, especially the technical rules for hazardous substances TRGS 560.

L-B0070

Software
LASERSOFT TEXTURE

Software package for the generation of programs for the texturing of surfaces. Automatic creation of 5- axis CNC and Laser programs from 3 dimensional bitmaps
Incl. collision detection and avoidance

For generating the laser program LASERSOFT TEXTURE needs the following input data:

3-D-data of the workpiece:	STL-format
Information of texture as grayscale bitmap: .bmp	
Mapping data in format:	wavefront.obj

L-B0054

Laser Marking

Software for marking of text directly at the machine (without using LPSWin). Specify text, font, size, position and rotating angle or bending angle for bended texts, select laser and marking parameter.

L-R0001

3D Data model in STEP format

Data basis in component structure for integration in a CAD system by the customer. It is used for machine simulation.

The model is divided into the essential component groups which are kinematically linked for simulation purposes. These are mainly the machine bed, laser head, working table and cabin. Peripherals such as coolant tank are not part of the model.

Editing and integration in the CAD or simulation system of the user is responsibility of the customer.

Supply against signed non disclosure agreement via email or CD as ZIP file.

D-NT400

Der DMG Netservice ermöglicht eine gesicherte VPN-Verbindung zum DMG Service und ist bereits auf Ihrer Maschinensteuerung vorinstalliert.

Über die Online-Verbindung können:

- sofortige und ausführliche Problemanalysen,
- direkte Fehlerdiagnosen an der Steuerung oder
- Softwareanpassungen durchgeführt werden.

Hinweise:

Um eine reibungslose Installation zu gewährleisten, muss die Checkliste des DMG Netservice vor Inbetriebnahme der Maschine vollständig ausgefüllt sein.

Nach der Gewährleistung fällt pro Maschine und Monat eine Bereitstellungsgebühr in Höhe von 25,00 € (netto) für den DMG Netservice an.

Es entstehen keine Onlinekosten für die Zeit einer Verbindung zwischen der Steuerung und dem DMG Service.

Die Lieferung und Nutzung des DMG Netservice erfolgt auf der Basis der Liefer- und Nutzungsbedingungen für den DMG Netservice.

Diese sowie die Checkliste zur Installation des DMG Netservice erhalten Sie mit der Auftragsbestätigung Ihrer Maschine oder unter www.dmgnetservice.com!

Gern stellen wir Ihnen diese Unterlagen und weitere Informationen hierzu auf Anfrage auch noch einmal gesondert zur Verfügung.