

2. TECHNICAL SPECIFICATIONS

2.1 MACHINE SPECIFICATIONS

- 2.1.1 Machine-specific data
- 2.1.2 Thermal radiation of periphery units
- 2.1.3 Floor load and evenness
- 2.1.4 Noise level
- 2.1.5 Room temperature, humidity
- 2.1.6 Exhaust power
- 2.1.7 Machine finish
- 2.1.8 Accident prevention regulations

2.2 INSTALLATION SPECIFICATIONS

- 2.2.1 Electrical specifications
- 2.2.2 Pneumatic specifications

2.3 MACHINE STRUCTURE

2.4 WORKING TABLE

2.5 Z-AXIS

2.6 WORKING SPINDLES

2.7 TOOL CHANGE

2.8 MACHINE ACCESSORIES

2.9 OPTIONS

2.10 CNC CONTROLLER

2.11 PROGRAMMING FUNCTION (OPTION)

2.12 ACCURACY

TECHNICAL SPECIFICATIONS

Chapter 2 1

2.1 Machine specifications

2.1.1 Machine-specific data

| SYSTEM | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|--------|---------------------------------------|---------|---------|---------|---------|---------|
| Machine weight approx. | | 1900kg | 4000 kg | 5500 kg | 7300 kg | 8800 kg | 9500 kg |
| Loader weight (empty) approx. | | 400kg | 600kg | SCU kg | 1000 kg | 1200 kg | 1300 kg |
| Weight of separate controller | | ca 160 kg (S&M) / ca 60 kg (X-30) | | | | | |
| Machine dimensions in mm (w/o motor projection and loader) * | Width | 1080/ 1500 | 1700 | 2380 | 2830 | 3360 | 3560 |
| | Height | 1650 | 1800 | 1800 | 1800 | 1800 | 1800 |
| | Depth | 1630 | 1970 | 1970 | 1970 | 1070 | 1970 |
| Machine dimensions in mm with loader (w/o motor projection) * | Width | 1080/ 1500 | 1840 | 2380 | 2830 | 3360 | 3560 |
| | Height | 1650 | 1300 | 1800 | 1800 | 1800 | 1800 |
| | Depth | ca 2400 | ca 3100 | ca 3100 | ca 3100 | ca 3100 | ca 3100 |
| Controller dimensions in mm | Width | 000 | | | | | |
| | Height | 1850 (S&M) / 1 00 (X-30) | | | | | |
| | Depth | 800 | | | | | |
| Thermal radiation in W approx. (average, w/o periphery units) | | 1200 | 1800 | 2300 | 2600 | 2800 | 2800 |

* see machine Implantation plan

2-1.2 Thermal radiation of periphery units

| | | |
|---|-------------------------------|----------------|
| Water re cooler at flow temperature 18°C room temperature 22 °C | PHK 450 | appr 650 Watt |
| | PHK 1000, LNG 1000, T129, 220 | app 1400 Watt |
| | LNG 2000, KUS 2000, T131, 221 | app. 2900 Watt |
| | LNG 3000, KUS 3000, T132, 222 | app. 4600 Watt |
| | TYP 243 | app 6000 Watt |
| Air dryer | HD 11S | app 400 Watt |
| | HD 33 S | app 750 Watt |
| | HD55 | app 970 Watt |
| | HD75 | app 1050 Watt |
| | HD105 | app 1150 Watt |
| | HD 150 | app 1250 Watt |
| Exhaust | GS-F 80 | app. 1000 Watt |
| | DS 1000, DS 1022 | app 2200 Watt |

2.1.3 Floor load and evenness

The floor must be **vibrationfree** and must **have a load capacity of min. 1500 kg/m²**. There is no need for anchoring the machine nor the controller. However, for machines equipped with automatic loading system, we recommend to anchor the loader.

For a loader with mobile containers, an even floor surface without holes or elevations in ground is required. In the area of the docking station, **the admissible unevenness is max. 2 mm/m²**.

2.1.4 Noise level

The machine is equipped with a protection cover which, amongst others, protects the operator against noise. The noise level of the machine is

approx. 72 -75 dBA with closed machine cover

approx. 75 - 80 dBA with open machine cover and
machines with autoloader where be opened *on backside*
(or higher depending on machine type and equipment)

2.1.5 Room temperature, humidity

see machine implantation plan

2.1.6 Exhaust power

On input of the machine we need:

0,8 - 1,3 m³/ min / spindle quantity of air

70 - 120 mbar vacuum for drilling

80-120 mbar vacuum for routing

the higher values are required for drilling small holes in 3 or 4 stacks or
for routing small slots in 2 or 3 stacks.

Notice: by long delivery pipes you have an drop in pressure of appr. 5 mbar / 10 m pipe.

2.1.7 Machine finish

grey-white RAL 9002 (other colours on request)

2.1.8 Accident prevention regulations

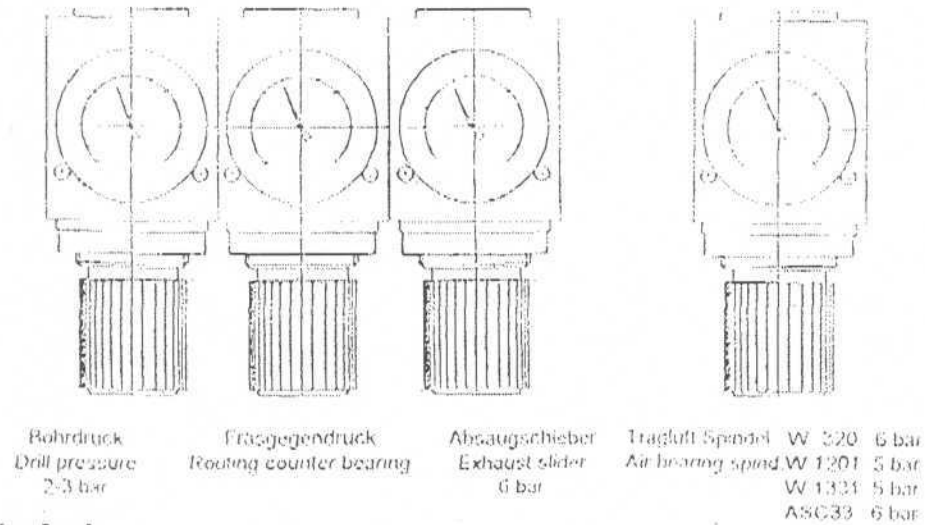
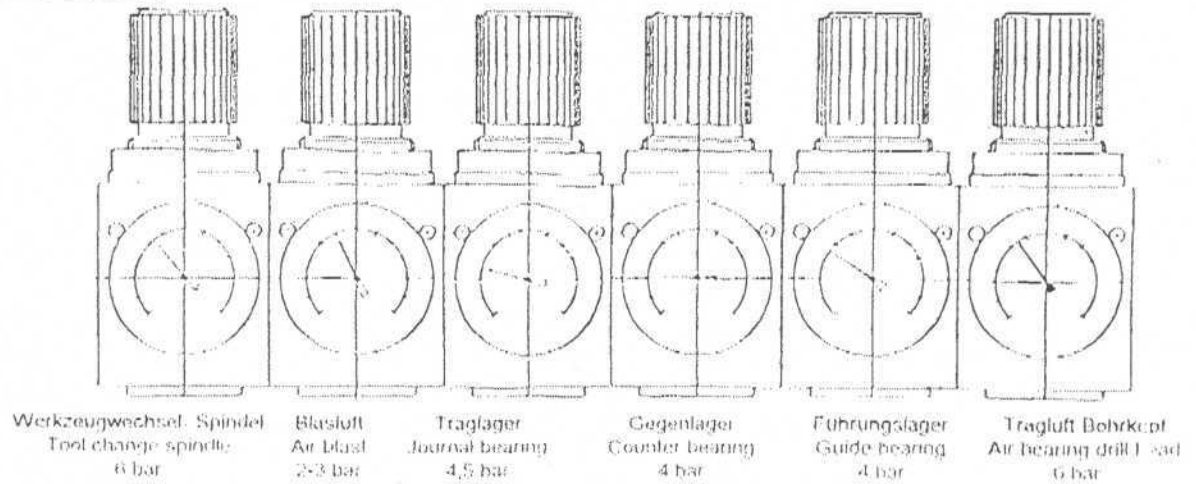
Our machines correspond to the accident prevention regulations valid in Germany as well as to the guidelines of local authorities or industrial associations -JEC, VDE, VDI, VDMA, DIN etc.

INSTALLATION- PNEUM.

Chapter 2.2

2.2.2 Pressure adjustments

X- Achse



Y- Achse

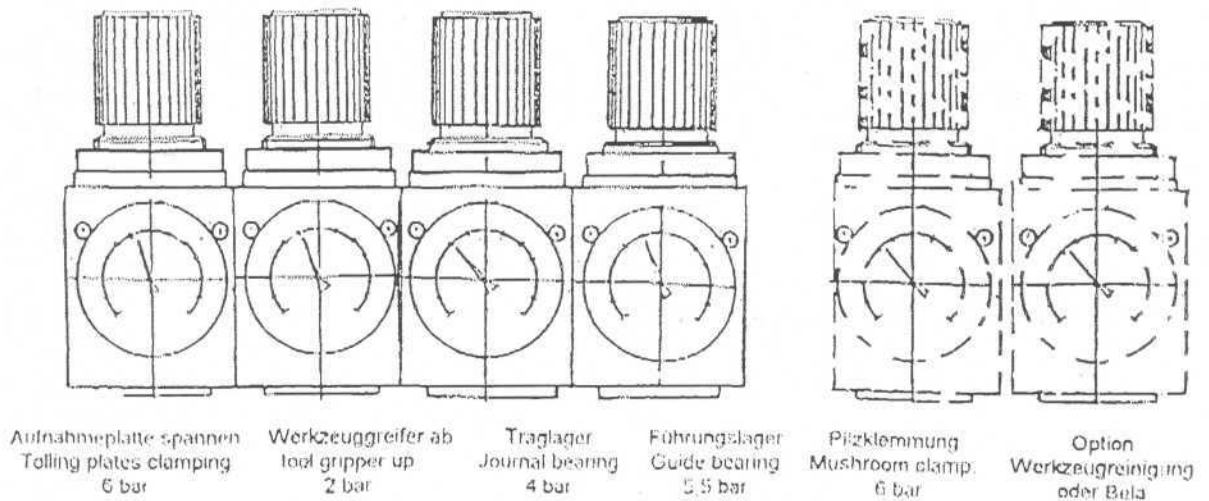
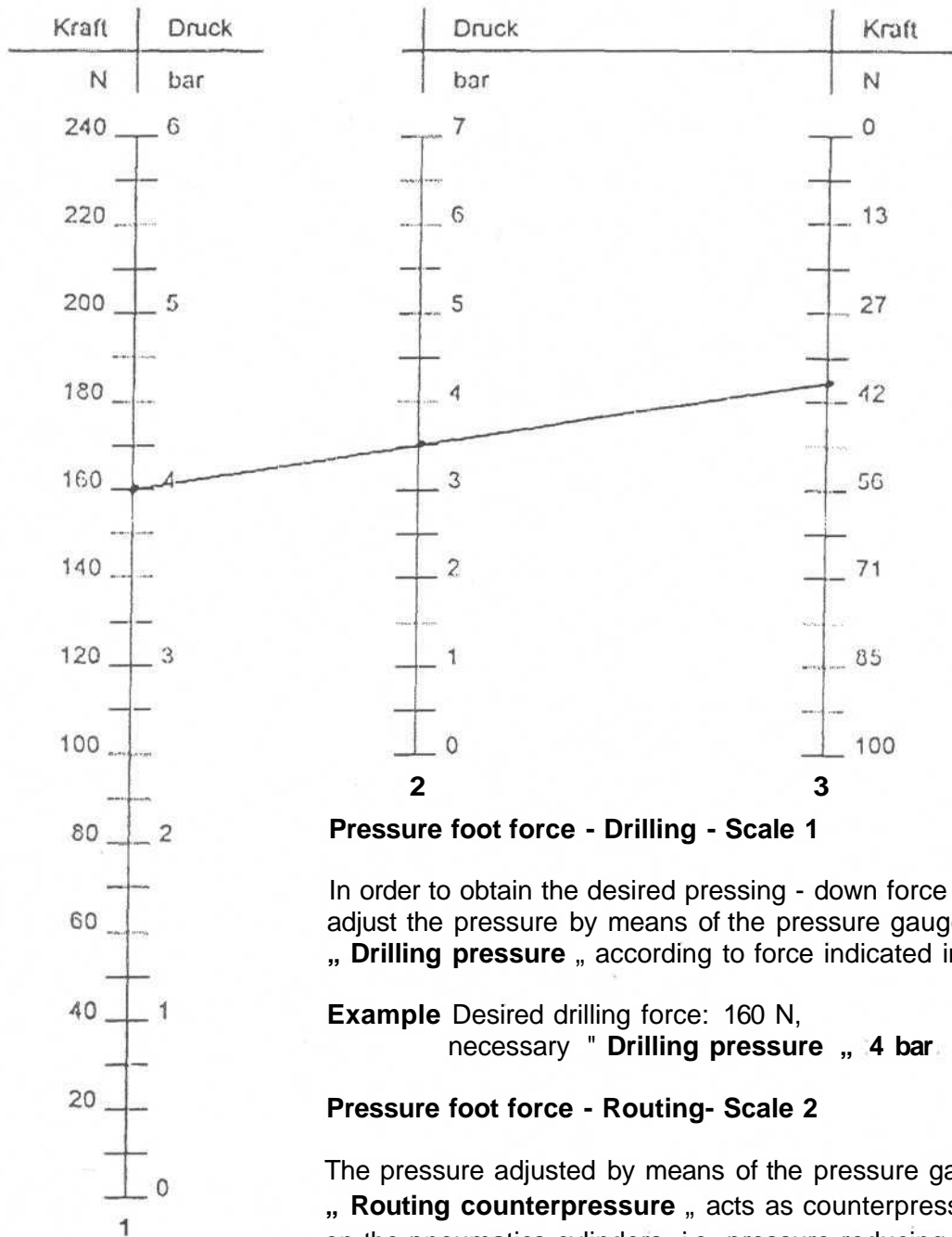


Fig. 2.2 2

Adjusting the pressure foot force Z- axis

Niederhalter
- Bohren -
Druckregler "Bohrdruck"

Niederhalter
- Fräsen -
Druckregler "Fräsgegendruck"



Pressure foot force - Drilling - Scale 1

In order to obtain the desired pressing - down force for drilling, adjust the pressure by means of the pressure gauge „ **Drilling pressure** „ according to force indicated in **scale 1**.

Example Desired drilling force: 160 N, necessary " **Drilling pressure** „ : **4 bar**

Pressure foot force - Routing- Scale 2

The pressure adjusted by means of the pressure gauge „ **Routing counterpressure** „ acts as counterpressure on the pneumatics cylinders, i.e. pressure reducing. The routing counterpressure (**scale 2**) can be determined by drawing a line from the preset drilling pressure (**scale 1**) to the desired pressure foot force - **Routing** - (**scale 3**) .

Example: Drilling pressure: 4 bar, desired pressure foot force- Routing- : 40 N, pressure adjustment on pressure gauge „**Routing counterpressure** „ : 3,5 bar

Abb 2 5.1

2.2 Installation specifications

2.2.1 Electrical specifications

Electrical connection: standard: 3/N/PE AC 50 Hz, 380 V, 2,5 mm²
fuses: 3 x 25A (SYSTEM 1) or 3 x 40A (SYSTEM 2-5)
option: other voltages and frequencies

Voltage fluctuations: admissible: $\pm 10\%$ approx.

Current interruptions: admissible: 1 ms max.

Max. power consumption

| Equipment | Number of spindles | | | | | |
|---------------------|--------------------|-------------|------------|------------|---------|---------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Basic machine | 1,0 KVA | 1,0 KVA | 1,0 KVA | 1,0 KVA | 1,0 KVA | 1,0 KVA |
| DC drive, approx. | 0,8 KVA | 1,0 KVA | 1,3 KVA | 1,6 KVA | 1,85KVA | 2,1 KVA |
| AC drive, approx. | 2 KVA | 2 KVA | 2 KVA | 2,6 KVA | 3,3 KVA | 4 KVA |
| Frequency converter | 1,5(2) KVA | 3 (5) KVA | 5 (8) KVA | 8 (10) KVA | 10 KVA | 10 KVA |
| Water recoler | 0,7 KVA | 1,0 KVA | 1 (1,6)KVA | 2,2KVA | 2,2KVA | 2,8KVA |
| Air dryer | 0,3 KVA | 0,3 KVA | 0,3 KVA | 0,5 KVA | 0,5 KVA | 0,7 KVA |
| Exhaust system | 1 KVA | (1) 2,2 KVA | 2,2 KVA | 2,2 KVA | 2,2 KVA | 2,2 KVA |

all figures are average values and can be higher or lower depending on machine type and equipment

TECHNICAL SPECIFICATIONS

Chapter 2.2

2.2.2 Pneumatic specifications

Air pressure: machine inlet pressure min. 6,5 bar, max. 8 bar (check air flow!)

Compressed air quality: - air temperature = room temperature
 - humidity = pressure dew point approx. 3°C
 - residual oil content = inferior to 0.01 mg/m³
 - solid matters = inferior to 0.01 µm

Air supply: for consumption up to
 600 nl/min = 1/2 " R
 600 - 1400 nl/min = 3/4 " R
 1400 - 2000 nl/min = 1 " R

| Air consumption: Number of spindles | Drill head with individual drive, AC or DC motors, averages figures, figures in nl/min. | | | | | | | |
|---|--|---------|----------|----------|----------|----------|----------|----------|
| | SC 53/63 (L) | | W 320 | | W 1331 | | ASC 3063 | |
| | DC | AC | DC | AC | DC | AC | DC | AC |
| 1 | 295(180) | 145(30) | 425(310) | 275(160) | 335(250) | 185(100) | 395(280) | 245(130) |
| 2 | 395(250) | 195(50) | 655(510) | 455(310) | 475(390) | 275(190) | 595(450) | 395(250) |
| 3 | 490 | 240 | 880 | 630 | 610 | 360 | 790 | 540 |
| 4 | 590 | 290 | 1118 | 810 | 750 | 450 | 990 | 690 |
| 5 | 685 | 335 | 1335 | 985 | 885 | 535 | 1185 | 830 |
| 6 | 780 | 380 | 1560 | 1160 | 1020 | 620 | 1380 | 980 |
| 7 | 880 | 425 | 1785 | 1335 | 1155 | 700 | 1575 | 1125 |

Values in brackets are valid for ball bearing series SYSTEM 1.

With laser control stations, an additional 100 nl/min per spindle is needed for tool cleaning every tool change 2 x a appr. 4 sec.

2.3 Machine structure

SYSTEM 1

| | |
|-----------------------------|--|
| CONSTRUCTIONAL CONCEPTION | rigid foundation with split axes based on precision guides |
| MACHINE BASE | Granite base plate mounted on welded steel subframe |
| MACHINE STRUCTURE | X-axis: traverse slide on granite guide beam Y-axis: rigid, top-mounted machine table Z-axis: drill head with individual drive |
| TRAVELLING RANGE X | SYSTEM 1/1 and SYSTEM 1-2 TWIN : 530mm SYSTEM 1/2 : 460mm |
| TRAVELLING RANGE Y | 730 mm |
| GUIDANCE X-, Y-AXIS | playfree, preclamped precision linear guides |
| DRIVE X-, Y-AXIS | preclamped precision ball screw with AC or air-cooled DC servo-motors |
| MEASURING SYSTEM X-, Y-AXIS | linear measuring system Heidenhain LIDA 190/40 |

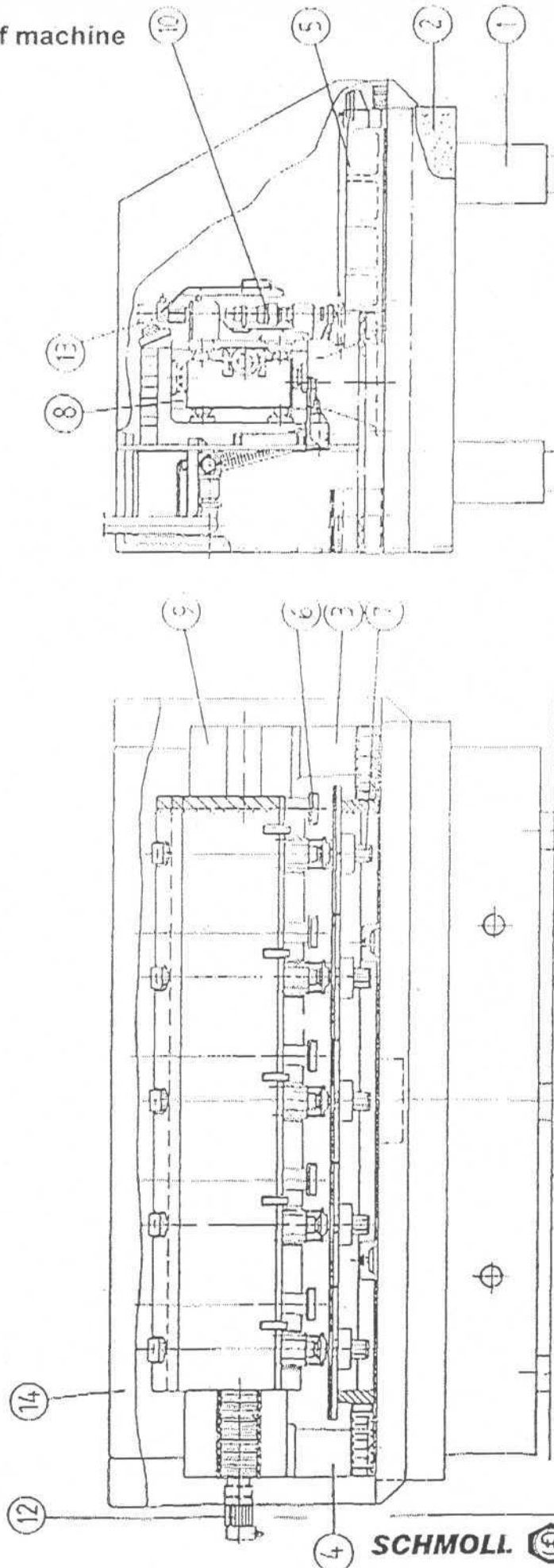
SYSTEM 2 - 7

| | |
|-----------------------------|---|
| CONSTRUCTIONAL CONCEPTION | rigid granite foundation with split axes guided on precision air bearings with air gap compensation |
| MACHINE BASE | granite plate mounted on granite ledges |
| MACHINE STRUCTURE | X-axis: traverse slide on granite guide beam Y-axis: rigid, top-mounted machine table Z-axis: drill head with individual or central drive |
| TRAVELLING RANGE X | 650 mm (SYSTEM 2 = 550mm) |
| TRAVELLING RANGE Y | 835 mm |
| GUIDANCE X-, Y-AXIS | precision air bearings with air gap compensation |
| DRIVE X-, Y-AXIS | preclamped precision ball screws with AC or air-cooled DC servo-motors |
| MEASURING SYSTEM X-, Y-AXIS | linear measuring system Heidenhain LIDA 190/40 |

MACHINE STRUCTURE

Chapter 2.3

2.3 Main parts of machine System 6



- 11 Motor Y-drive
- 12 Motor X-drive
- 13 Motor Z-drive
- 14 Machine protective nousing

- 1 Support
- 2 Baseplate
- 3 Right hand stand
- 4 Left hand stand
- 5 Machine table
- 6 Tool storage
- 7 Tool gripper
- 8 Cross carriage
- 9 Cross beam
- 10 Drill / routing head

Fig. 2.3

5

TECHNICAL SPECIFICATIONS

Chapter 1.4

2.4 Working table

SYSTEM 2 - 7

| | | |
|--------------------------------|----------|----------------------|
| TABLE SIZE (TOOLING PLATES) | SYSTEM 2 | : max. 1240 x 650 mm |
| | SYSTEM 3 | : max. 1780 x 650 mm |
| | SYSTEM 4 | : max. 2230 x 650 mm |
| | SYSTEM 5 | : max. 2760 x 650 mm |
| | SYSTEM 6 | : max. 2980 x 650 mm |
| | SYSTEM 7 | : max. 2980 x 650 mm |

FORMAT TABLE

| SYSTEM | Stations | drill head distance w/o mushrooms | drill head distance with mushrooms | max. format with mushrooms | max. format with loader |
|--------|----------|--------------------------------------|---------------------------------------|-------------------------------|----------------------------|
| 2 | 2 | 550 (21,6") | 550 (21,6") | 550 (21,6") | 533 (21") |
| | 3 | 406 (16") | 381 (15") | 356 (14") | 346 (13,6") |
| 3 | 2 | 765 (30") | 765 (30") | 765 (30") | 765 (30") |
| | 3 | 550 (22") | 560 (22") | 542 (21,3") | 533 (21") |
| | 4 | 432 (17") | 432 (17") | 414 (16,3") | 406 (16") |
| 4 | 3 | 650 (22,6") | 650 (22,6") | 632 (24,8") | 615 (24,2") |
| | 4 | 550 (21,6") | 536 (21,1") | 518 (20,4") | 508 (20") |
| | 5 | 432 (17") | 432 (17") | 414 (16,3") | 406 (16") |
| 5 | 4 | 650 (22,6") | 650 (22,6") | 632 (24,8") | 615 (24,2") |
| | 5 | 550 (21,6") | 536 (21,1") | 518 (20,4") | 508 (20") |
| | 6 | 460 (18,1") | 432 (17") | 414 (16,3") | 406 (16") |
| 6 | 7 | 394 (15,5") | 383 (15") | 365 (14,3") | 356 (14") |
| | 5 | 560 (22") | 560 (22") | 542 (21,3") | 533 (21") |
| | 6 | 483 (19") | 483 (19") | 465 (18,3") | 457 (18") |
| 7 | 7 | 406 (16") | 406 (16") | 388 (15,2") | 381 (15") |

format Y = 650mm (25,5") . Option: Y = 765mm (30")

| | |
|----------------|--|
| TOOLING SYSTEM | prism-slot oder custom-specific options: -mushroom pressure foot -depth clamber for pinless clamping -ML tooling with soft tool inserts |
| STACKING PINS | ø on request, 3.0 to 5.0 mm, centred of custom-specific |
| SLOT DEPTH | standard 10,5 mm with automation 12,5mm, the stacking pin must look out of the panel between 8 and 12 mm. |
| MACHINE ZERO | standard right rear |
| PROGRAM ZERO | standard left rear or custom-specific |

TECHNICAL SPECIFICATIONS

Chapter 2.4

TOOLING PLATE

- VERSION 2 Tooling plate with pneumatic prism clamping and fixed slo.
- VERSION 3 Tooling plate with pneumatic prism- and slot clamping
- VERSION 5** Tooling plate with pneumatic prism- and slot clamping provided with lateral mushroom clamps
- VERSION 6 Tooling plate with depth fixing facility and lateral mushroom pressure feed for pinless clamping
- VERSION 7 Multilayer tooling system with softtooling inserts to be combined with version 3, 4, 5, or 6

Version 2



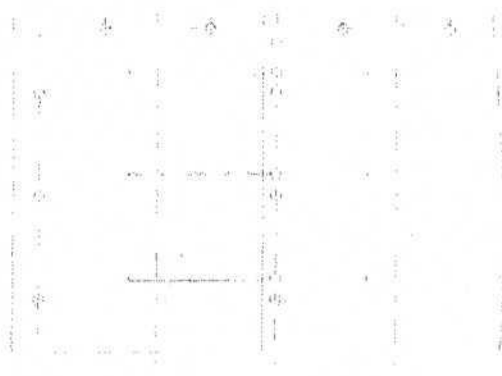
Version 5



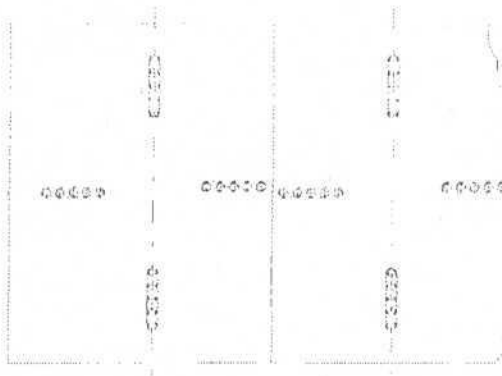
Version 3



Version 6



Version 7



Measure X=20mm (50mm with finish pressure foot and LASER measurement station)

TECHNICAL SPECIFICATIONS

Chapter 2.5

2.5 Z - axis

| | |
|---------------------------------|--|
| CONSTRUCTIONAL CONCEPTION | <p>Individual drive</p> <p>The Z-axis is guided directly along the outer sleeve of the drilling spindle in a high-precision spindle air bearing, free from wear and nearly frictionless.</p> <p>The up and down movement is carried out by means of a preclamped, precision lead screw equipped with AC motor or air-cooled DC-servo motor.</p> |
| WORKING TRAVEL | <p>Infinitely variable and freely programmable via the CNC</p> <p>0-25 mm for standard spindle 0-22 mm for micro-drilling spindle W1201-8 and 1331-17</p> |
| DRILLING DEPTH | Max. 10 mm (limited by the pressure foot) |
| DRILLING/ROUTING PERFORMANCE | See chapter 2.6 "Working spindle" |
| CUTTING CHARACTERISTICS | See specifications of the tool manufacturer, rough values in chapter 3 |
| PRESSURE FOOT FORCES | <p>Two separately adjustable pressure foot forces can be selected via the program</p> <p>Drilling: 50 - 240 N Routing: 5 - 50 N</p> |
| STANDARD PRESSURE FOOT | Compact design, with exhaust tube leading to central or individual exhaust. Exchangeable pressure foot insert, available in different versions |
| ROUTING PRESSURE FOOT | <p>On option</p> <ul style="list-style-type: none"> - for webless contour routing - centrally locked when drilling or routing - for finish routing, evasion possibility to any direction of ± 5 mm - with firm pressure ring and extendable brush (add. option) - with individually controllable stop valves (add. option) - with exhaust tube to central or individual exhaust |
| MEASURING SYSTEM | <p>The standard equipment for the main measuring system is</p> <ul style="list-style-type: none"> - linear potentiometer T 50 a 502 - resolver Heidenhain ROD 420/1250 - integrated resolver for AC servo motors <p>With option depth drilling or blind via drilling, as additional linear measuring system Heidenhain MT 25 oder MT 60 is used.</p> |

Options

| | |
|-------------------------------|--|
| DEPTH DRILING WITH LASER | (Blind via drilling) programmable drilling depth measured from the panel surface independent of stack height or unevenness. Accuracy : $\pm 25\mu\text{m} / 3\sigma$ with 2nd measuring system $\pm 15\mu\text{m} / 3\sigma$ with CBT funktion |
| QUICK - DRILL | Programmable free travel of Z-axis measured from the panel surface, independent of stack height or unevenness |
| LASER MEASUREMENT | Dynamic measurement of tool diameter, length and truth at working speed and broken drill bit detection after drill cycle |
| BROKEN DRILL BIT DETECTION | Detection of broken drill bit after every drill hit up to dia. of 0.2 mm (REAL - TIME) |
| LENGTH CHECKER | Detection of drill bit length between an programmable tolerance and detection of broken drill bit after drill |

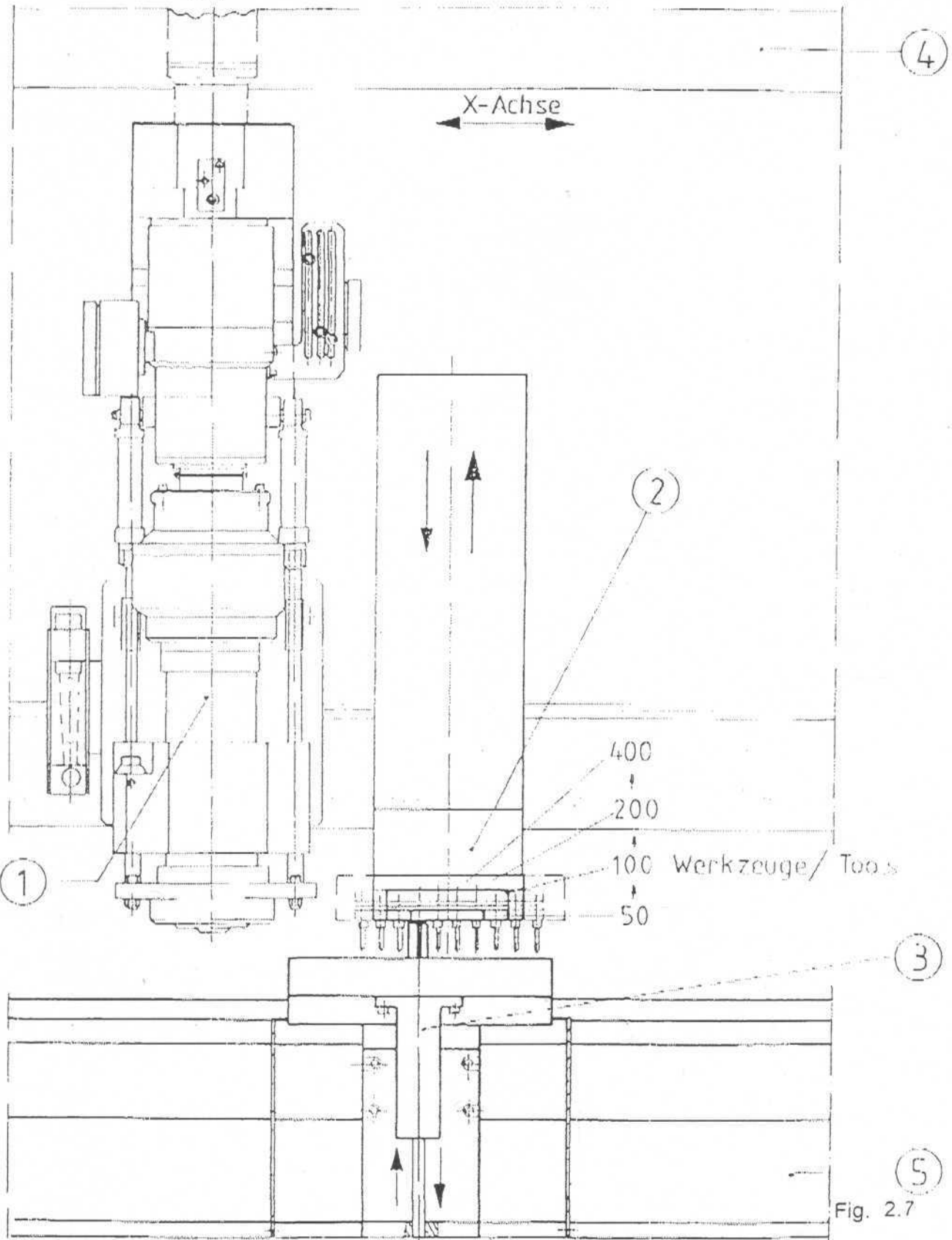
2.7 Tool change

The tool change unit consists of the magazine change system (KWS) and the tool gripper. The magazine change system is mounted to the traverse slide (X-axis), whereas the tool gripper is mounted to the machine table (Y-axis).

The tools to be used have to have a shaft diameter of 3 mm or 3.175 mm (1/8"). Tools used for the standard version have to be equipped with stop rings. On option, tools without stop rings can be implemented as well.

| | |
|---------------------------------|---|
| NUMBER OF MAGAZINE CASSETTES | 1 or 2 per working station |
| NUMBER OF TOOLS (per cassette) | 50, 100, 200, 300, 600, 840 |
| EUROMAGAZINE (per cassette) | 20, 30, 60, 84 bars with 10 tools (11 positions) each |
| MAGAZINE CONFIGURATION | Freely selectable with standard tool fitting T1 to T50, T100, T200 EUROMAGAZINE: choice between standard (individual) fitting and bar fitting on option: custom-specific tool fitting |
| TOOL CHANGE TIME | Approx. 12-25 sec, depending on spindle speed, position, performance of frequency converter and use of process control equipment as e.g. laser monitoring station |
| TOOL CHANGE MONITORING | Monitoring tool gripper: up and down position |
| OPTIONS | |
| RINGLESS TOOL FITTING | Stop rings are no longer needed (only in combination with mechanical length check or laser measuring station) |
| BROKEN DRILL BIT DETECTION(BBD) | The tool is monitored when returned or picked up by the spindle |
| MECHANICAL LENGTH CHECK(TLC) | Checking the free-clamping length of ringless tools, in particular. If there is no BBD available, tool breakage can be detected after the drilling process. |
| LASER-MEASURING STATION | Measuring length, diameter and truth of the tool collected. If there is no BBD available, tool breakage can be detected after the drilling process. |
| MAGAZINE AVAILABILITY CHECK | Indicates optically that a tool magazine is loaded. |
| MAGAZINE IDENTIFICATION | Assigns an individual code to every magazine |

Tool change, movable X- Axis with tooling plate 50 / 100 / 200 / 300 Tools



2.7 Manual tool change

AC- drive

22.50.000- 3

W320 / W1201 / W1331 / SC53 / SC63 (L)

When pressing the green key (1) on the drill head (only possible when spindle is not rotating) the clamping mechanism is released and the tool drops out of the spindle.

Insert preset tool while pressing the key up to the stop ring, then release pressure key.

The collet incorporated in the spindle fixes the tool shaft.

For checking and cleaning the collet please refer to the operating instructions of the spindle manufacturer.

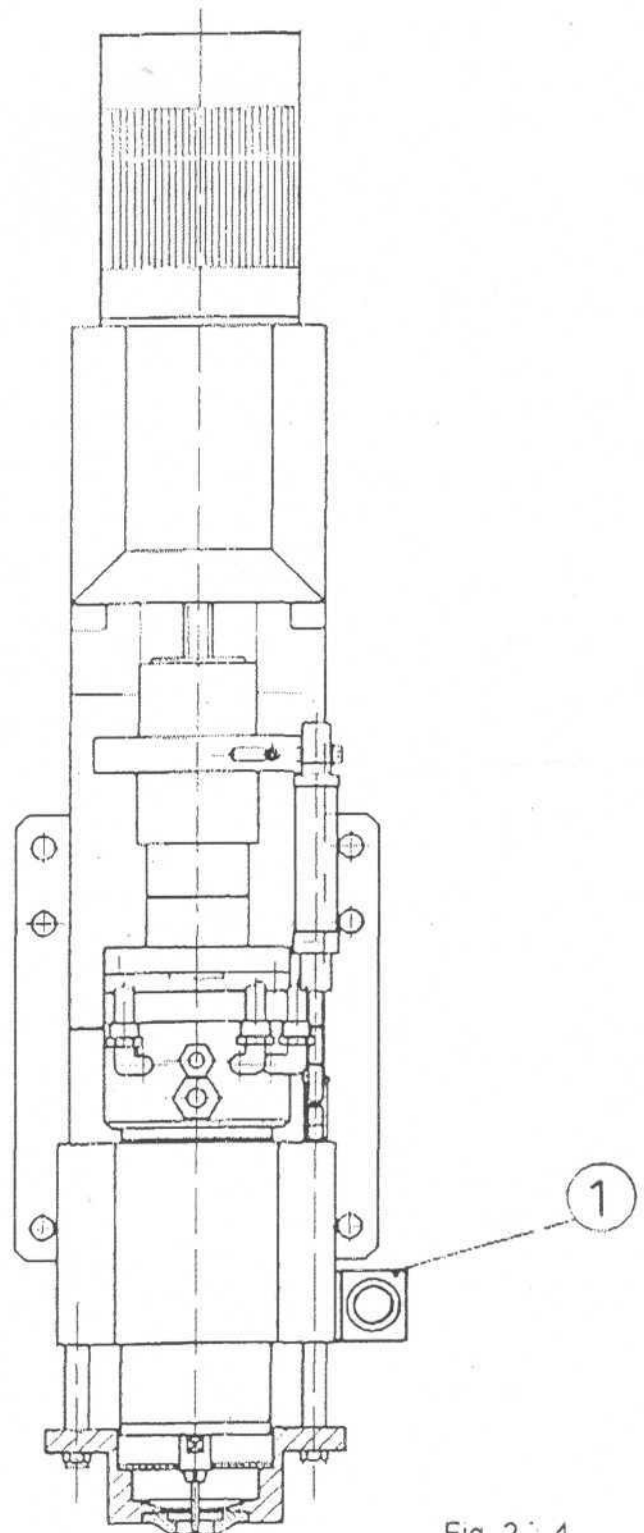


Fig. 2.3.4

2.8 Machine equipment

| | |
|------------------------------------|--|
| EXHAUST TUBE | The connection for the exhaust tube on the machine cover is optionally on the top or at the rear. SYSTEM 2 or higher versions offer connection at right or left hand side. The inner diameter to be connected is 40 mm for SYSTEM 1 and 70 mm for SYSTEM 2 and higher versions |
| TOOL STOP RINGS | With option "ringless tools" no stop rings are needed, otherwise 1 set of stop rings per spindle is supplied. (outer diameter 7.55 mm, height: 4.5 mm), OPTION: stop rings from other manufacturers. |
| OPERATING MANUAL | Standard 2-fold, German or English |
| HIT COUNTER | Standard 1 hit counter per machine |
| FREQUENCY CONVERTER | Static frequency converter for adjusting the spindle speed via CNC. Reaching the rated RPM within 10-15 sec. is standard. More powerful converters for reducing the accelerating and braking times are available on option. |
| NOISE PROTECTION COVER | For noise reduction and accident prevention standard: manually openable machine cover OPTION: pneumatically openable cover with electronic security strip |
| AIR BUFFER FOR AIR BEARING SPINDLE | To prevent damage on the spindle which might be caused bearing spindle by sudden loss of air pressure at the air inlet opening. Depending on the number of spindles and air consumption, one or two air buffers are installed. |
| MACHINE ACCESSORIES | Comprise levelling elements, corrosion protections means for the cooling water, granite cleaner, grease for lead screw, cleaning set for working spindle, collet key (if needed), miscellaneous tools and small parts. |
| PANAL-MANAGER | Standard for machines with automatic loading facility |
| SPINDLE HOUR COUNTER | Standard per working spindle |
| SPINDLE MONITORING | Standard per spindle: RPM and temperature |
| PLC | Signal processing of the machine functions and transfer to the loader controller |
| WATER RECOOLER | For cooling the working spindle: standard: closed recirculating system with air-heat-exchanger option: closed recirculating system with water-heat-exchanger for exploiting the processing heat |

2.8 Frequency converter

Fa. SIEB & MEYER

The machine is equipped with a static frequency converter make SIEB & MEYER in order to facilitate the spindle operation. Spindle **START - STOP** is operated by the controller. Speed is entered in the CNC as „ S „ command in the tool data.

The keys for converter **START - STOP** incorporated in the converter panel are inactive when the converter is controlled externally.

The individual spindle speed is displayed on the CRT for monitoring purposes.

Various interlocks are included in the machine to protect the converter and the spindles. Spindles, which are to operate in the program, can be switched on or preselected at any time.

In this case, a **STOP** command is sent to the converter and the spindles are switched on and off with speed at zero. Then the converter starts again provided that the CNC still sends a **START** command to the converter.

If the converter is switched off due to overload, the controller prevents the Z- axis movement in order to protect the spindles.

2.8 Coolant circulation system

The machine is equipped with an internal coolant circuit for cooling the working spindles. The cooling serves for the maintenance of a steady temperature at the high precision bearings of the drill spindles and for the disposal of the heat, which is produced by the motor.

An incorporated coolant filter in the coolant forward systems prevents the pollution by small particles of the machine internal water circuit.

The flow of the coolant liquid can be seen from an optical display unit. If a low flow is existing, the spindle has to be shut down. Please take care for a clean coolant.

Please check once a month the filling level in the tank. If necessary, refill with a mixture of coolant - water concentrate in the ratio of 1 : 60.

Panel Manager**Leistungsmerkmale
zum Panel Manager**

1. Eingabe verschiedener Berechtigungsstufen durch Paßwort
2. Manuelle Maschinenbedienung durch integrierte Panels
3. Statusanzeige in jedem Panel (z.B. Spindel ein, Spindel Std.)
4. Eingabe des Programmnamens mit Schrumpfen / Dehnen / Versatz
5. Barcode - Eingabe möglich
6. Fachbezogene Prioritätsvergabe
7. Diagnosesystem mit monatlicher Protokollierung
8. Maschinenbuchführung durch integriertem Texteditor
9. Betriebsdatenerfassung mit täglicher / monatlicher Protokollierung
10. Mehrsprachenfähig durch Umschalten im Parametermenü
11. On-line-Hilfe
12. Anschluß eines übergeordneten Leitrechners
13. Plattenrüsten während des Autoruns
14. Menügeführtes Dialogsystem in SSA-Technik (Windows)
15. Offen für Kundenspezifische Speziallösungen

**Performance Characteristics
for Panel Manager**

- User access through password
- Integrated machine functions
- Status information m/c
- Input of part programm for for every level with shrink / stretch / off set
- All inputs trough barcode possible
- Priority change of levels
- Diagnostic system with monthly protocol
- Integrated machine book
- Operating datafile daily / monthly
- Multi lingual system
- Help-function
- Network ethernet to host
- Loading during autorun
- Windows menue on DOS-System
- C-program open for specific customer solution

Abb. 2.8.3