Operating instruction

tablet press P1200 / TSC

machine no. : xxx

customer : Sample

EG – Konformitätserklärung

im Sinne der EG – Maschinenrichtlinie 98/37/EG

WILHELM FETTE GMBH, Schwarzenbek, Germany

EC declaration of conformity as defined by machinery directive 98/37 EC

Déclaration ” CE ” de conformité conformément á la directive ” CE ” relative aux machines 98/37/CE

Wir erklären in alleiniger Verantwortung, daß unser Produkt

We declare under our sole responsibility that the product

Nous déclarons sous notre seule responsabilité que le produit

Bezeichnung : **Tablettenpresse / tablet press / presse pour comprimés**

Masch. Typ : **P1200**

Serien Nr. :

folgenden einschlägigen Vorschriften entspricht :

complies with the following provisions applying to it :

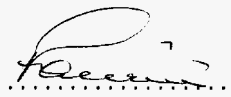
correspond aux dispositions pertinentes auivantes :

n - EG – Maschinenrichtlinie 98/37EG

n - EG – Niederspannungsrichtlinie 73/23/EG

n - EG – EMV – Richtlinie 89/336/EG

- EG – Richtlinie für Druckbehälter 87/404/EG



Schwarzenbek, den 20. Januar 2000 Unterschrift

Position des Unterzeichner : E. Valerius Geschäftsführer

CERTIFICATE

The TÜV CERT Certification Body of TÜV NORD
Zertifizierungs- und Umweltgutachter Gesellschaft mbH
certifies in accordance with TÜV CERT
procedures that

Wilhelm Fette GmbH

D-21493 Schwarzenbek

has established and applies a quality system for

Precision Cutting Tools
Tabletting Systems and Service.

An audit was performed, Report No. 29826303

Proof has been furnished that the requirements according to

EN ISO 9001 : 1994

are fulfilled.

The certificate is valid until June 2003

Certificate Registration No. 07 100 010

Deutscher Akkreditierungs Rat
DAR
TGA-ZM-22-96-00

Hamburg, 2nd of June 2000

TÜV NORD
ZERTIFIZIERUNGS- UND
UMWELTGUTACHTER GESELLSCHAFT

A. Müller
TÜV CERT Certification Body of TÜV NORD
Zertifizierungs- und Umweltgutachter Gesellschaft mbH

Binder 1

Binder 2

Binder 3

Binder 1

Binder 2

Binder 3

1. GENERAL INFORMATION

1.1. Introduction

This information has been written with the intention of its being read, understood and observed in all points by those responsible for the use of the P 1200 tablet press.

The full technical documentation extends to three (3) volumes, which should always be kept within easy reach of the P 1200. This operating manual draws attention to details that are especially important for the use of the P 1200.

A sound knowledge of the operating manual is required, if mistakes in operating the P 1200 are to be avoided and the smooth running of the machinery is to be guarantied. It is therefore very important that the persons responsible for the equipment are thoroughly familiar with this operating manual.

We recommend that this operating manual be read carefully before the equipment is put into operation, as we accept no liability for damage or interruption to operation arising due to non–observation of the contents of this manual.

Should difficulties nevertheless arise, please contact our service department, our spare parts division or one of our representatives. They will be pleased to assist you.

The present operating manual is solely applicable to the P 1200.

As regards the presentation and contents of this operating manual, we reserve the right to make technical alterations necessary for the improvement of the P 1200.

1.2. Fields of Application

The P 1200 tablet press was designed as a modular system within a tablet–compressing cell for the manufacture of tablets or press–formed preparations.

Tablet presses are employed in the chemical, pharmaceutical, food, animal feed and sinter–metal industries.

To enable a P 1200 to be employed to its full capability in the given field of application, various pressing tools, accessory parts and peripheral devices can be delivered to meet the specific production requirements.

Basically speaking, the P 1200 is suitable only for those areas of application specified in the operating manual and with the tools, accessory parts and peripheral devices foreseen in the supply schedule.

Before employing the P 1200 in fields of application other than those specified by contract, the FETTE company customer service section should be consulted (contact address: see Volume 2, ”Spare Parts and Customer Service”), as otherwise the warranty is invalid.

1.3. Copyright

The copyright to this operating manual is retained by WILHELM FETTE GMBH.

This operating manual is intended for personnel involved in the assembly, operation or supervision of the equipment. It contains directives and drawings of a technical nature, that must not be copied, circulated or conveyed to unauthorized persons for advertising purposes, whether in whole or on part.

The copyright also extends to the data processing programs and the related program descriptions.

In the event of extension or exchange of the existing programs the user undertakes to destroy all previous versions, copies and documentation of the substituted programs, unless some alternative agreement has been reached.

Transfer to a third party is not permitted.

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2. SAFETY

2.1. Explanation of Symbols and Signs

Work Safety Symbol :

This symbol is to be found in connection with all work safety references made in this operating manual which involve some risk to life and limb.

Be sure to pay attention to all references of this sort, taking special care in such instances.

Pass on all work safety references to other users, too.

The general safety and accident–prevention regulations currently valid must also be observed, in addition to the safety warnings given in this operating manual.

ATTENTION !

This **ATTENTION !** symbol is used to indicate those parts of this operating manual to which particular attention must be paid, in order to ensure that regulations, directives, references and correct work sequences are observed, and to avoid damage and destruction of the machinery and/or other installation components.

2.2. Work Safety Warning

Your P 1200 is equipped with all safety devices as foreseen by machine protection law, the relevant DIN / ISO directives, EC guide–lines and the requirements of the German Professional Association for Chemistry.

If all the regulations governing the operation and servicing of the machinery are observed, the required safety level will have been achieved and the risk of injury will have been excluded.

PARTICULAR ATTENTION SHOULD BE PAID THE FOLLOWING WORK SAFETY WARNINGS :

ATTENTION !

- Use of this machine can be dangerous, if it is incorrectly operated by untrained personnel or is employed for purposes not foreseen or intended.
- Everyone on the user's premises involved in the assembly, dismantling and re–assembly, start–up, operation or maintenance (inspection, servicing, repair) of the P 1200 must have read the entire operating manual and, in particular, must have both read and understood the chapter "Safety". It is recommended that the user has this confirmed in writing.
- The P 1200 is intended for the stipulated field of application only. Any use made made of the equipment outside this field shall be regarded as not having been agreed. The manufacturer shall accept no liability for any damage resulting from such use, the associated risk being borne solely by the user.
- Observation of the assembly, dismantling and re–assembly, start–up, operation and maintenance requirements specified by the manufacturer must also be regarded as part of the agreed utilization.
- Operation, servicing and repair of the P 1200 must be completed by authorized, trained and well–instructed personnel only. Such personnel must have received special instructions on the dangers that might possibly arise.
- Responsibility for assembly, dismantling and re–assembly, start–up, operation and maintenance must be clearly established and observed, so that no uncertainty can arise with respect to areas of competence and safety aspects.
- For all work that involves assembly, dismantling and re–assembly, start–up, operation, adjustment or maintenance, the disconnection procedures specified in the operating manual must be observed.
- Working techniques that detract from the safety aspect must not be employed.
- The user is responsible for ensuring that no unauthorized person gains operational access to the equipment.
- The user is required to report any changes detracting from the safety of the plant immediately.

- The user is required to ensure that the P 1200 will always be operated in sound condition only.
- User–authorized modifications and alterations that affect the safety of the equipment are not permitted.
- Basically speaking, work on the machinery is to be carried out only after it has been brought to a standstill.
- Before the commencement of servicing or maintenance work, care should be taken to ensure that the drive units and accessory parts cannot be switched on inadvertently.
- After the completion of repairs, before renewed start–up, a check should be made to ensure that all protective gear is in place.
- When it comes to removal and replacement of mechanical components, attention must be paid to the weight of the parts in question.
- For cleaning work, it is imperative that the manufacturer's note (on cleaning agents) be observed.
- The load–bearing capacities of the lifting appliances to be installed must at least be equivalent to the weight of the assembly components.
- Doors and flaps may not be opened until the machinery has already been brought to a standstill.
- Machinery and switch cabinet must be fastened using the appropriate eyelets only.
- After significant electrical assembly or electrical repair work, the existing safeguards are to be tested (e.g. earth resistance).
- The local safety and accident prevention regulations apply, in every case, to the operation of the P 1200.

THE FOLLOWING 4 POINTS MUST BE OBSERVED BY EVERY USER :

1. Flaps to the Press Area

. Safety switches attached to the flaps secure access to the equipment's press area. These switches should be checked every day, before starting up the machinery, to ensure that they are in good working order. While one or more flaps are open, the machinery in not able to be operated and cannot be started up. If such a flap is opened during operation of the machinery this will result in immediate standstill.

2. Flaps on the Underside of the Housing

. The 4 flaps on the underside of the housing are secured by spagnolet locks and must be opened with a key. This key is to be given to authorized persons only. Before the flaps to the underside of the housing are opened by the authorized person, the main electrical switch is to be switched off at the operating terminal or at the switch cabinet, which is then to be locked.

3. Plug Connections

. If the electrical connection between the machinery and the Terminal is to be interrupted, the plugs must be pulled out. Before the plugs has been entirely removed, however, the main–switch has to be in the "OFF" position.

4. EMERGENCY SHUTOFF Switch

. Your P 1200 has EMERGENCY SHUTOFF switches, in keeping with the relevant VDE and TÜV provisions. These switches must be unblocked again, after activation, by turning them through a quarter rotation.

2.3. Agreed Applications

The P 1200 is intended for use as described in the supply schedule (pressing tools, accessory parts, peripheral devices) only.

Each and every other use shall be regarded as not having been agreed.

The manufacturer accepts no liability for consequent damage, the risk here being borne solely by the user.

This operating manual may contain references to special parts that are not necessarily to be found on your machine and might well be described as options.

The security aspect is not thereby prejudiced.

The supply schedule covers only those parts governed by contract or by delivery note.

Subject to technical alterations.

As at : Jul. 2000 Version : 1.00

3. Characteristic data

3.1. Machine data / Environmental conditions

Manufacturer:	WILHELM FETTE GMBH
Model:	FETTE P 1200
Name plate:	Behind the lower flap under the tabletchute
Operating voltage:	400 – 460 V, 50/60 Hz, 3 Ph
Power consumption:	6,5 KW
max. pressuring force:	80 kN
max. pre–pressuring force:	50 kN
Pitch circle diameter:	280 mm
Top punch insertion depth:	2 – 5 mm
Projected floor area:	900 x 900 mm
Net weight of the machine:	1900 kg
Height of the machine:	1875 mm

Environmental conditions :

Relative Humidity (not condense)	5 – 95 %
Temperature switch cabinet	0 – 25˚C
Temperature Operating–Terminal	0 – 25˚C
Temperature Machine	5 – 35˚C

3.2. General data PT2090

Number of stations		32	30	24	20	20	
Punch typ		EU19	EU19 (IPT 19)	EU 19 (IPT 19)	EU 1" (IPT 1")	EU 1"–441	
Tablet output per/h	min max	48.000 230.400	45.000 216.000	36.000 172.800	30.000 120.000	30.000 120.000	
Max. compr. force	kN	80*	80	80	80	80	
Max. pre–compr. force	kN	50	50	50	50	50	
Max. tablet dia.	mm	11	13	16	25	25	
Max. depth of fill	mm	18	18	18	18(22)	18(22)	
Max. tablet thickness	mm	8,5	8,5	8,5	8,5(11)	8,5(11)	
Pitch circle dia.	mm	280	280	280	280	280	
Die plate speed	rpm	25–120	25-120	25–120	25-100	25-100	
Die plate dia.	mm	22	24	30,16	38,1	38,1	
Die plate hight	mm	22,22	22,22	22,22	23,8	23,8	
Punch shank dia.	mm	19	19	19	25,35	25,35	
Punch length	mm	133,6	133,6 (133,35)	133,6 (133,35)	133,6 (133,35)	133,6 (133,35)	
Upper punch penetr. depth	mm	1 – 5	1–5	1–5	1–5	1–5	
Weigth		Tablet press approx, 1900 kg –					
Power supply data		Service voltage 400 – 460 V +/– 10%, 50/60 Hz – 6.5 KW					

*Tools only allow 70 kN max.

4. Erection

4.1. Transport, loading and unloading

The packaging is weather–proof and seaworthy.

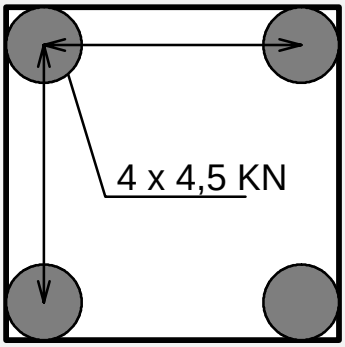
The transport crate is marked according to DIN 55 402.

ATTENTION !

During transport, loading and unloading, ensure that wire or hemp cables of sufficient load–carrying capacity are used.

These are fastened to the markings shown on the crate.

When transporting the crate, avoid placing it with force on a corner and ensure that it is kept in a vertical position.



Load details (foundations)

P 1200 places a load of approx. 18 kN on the foundations. The centre of gravity is approximately in the middle of the press.

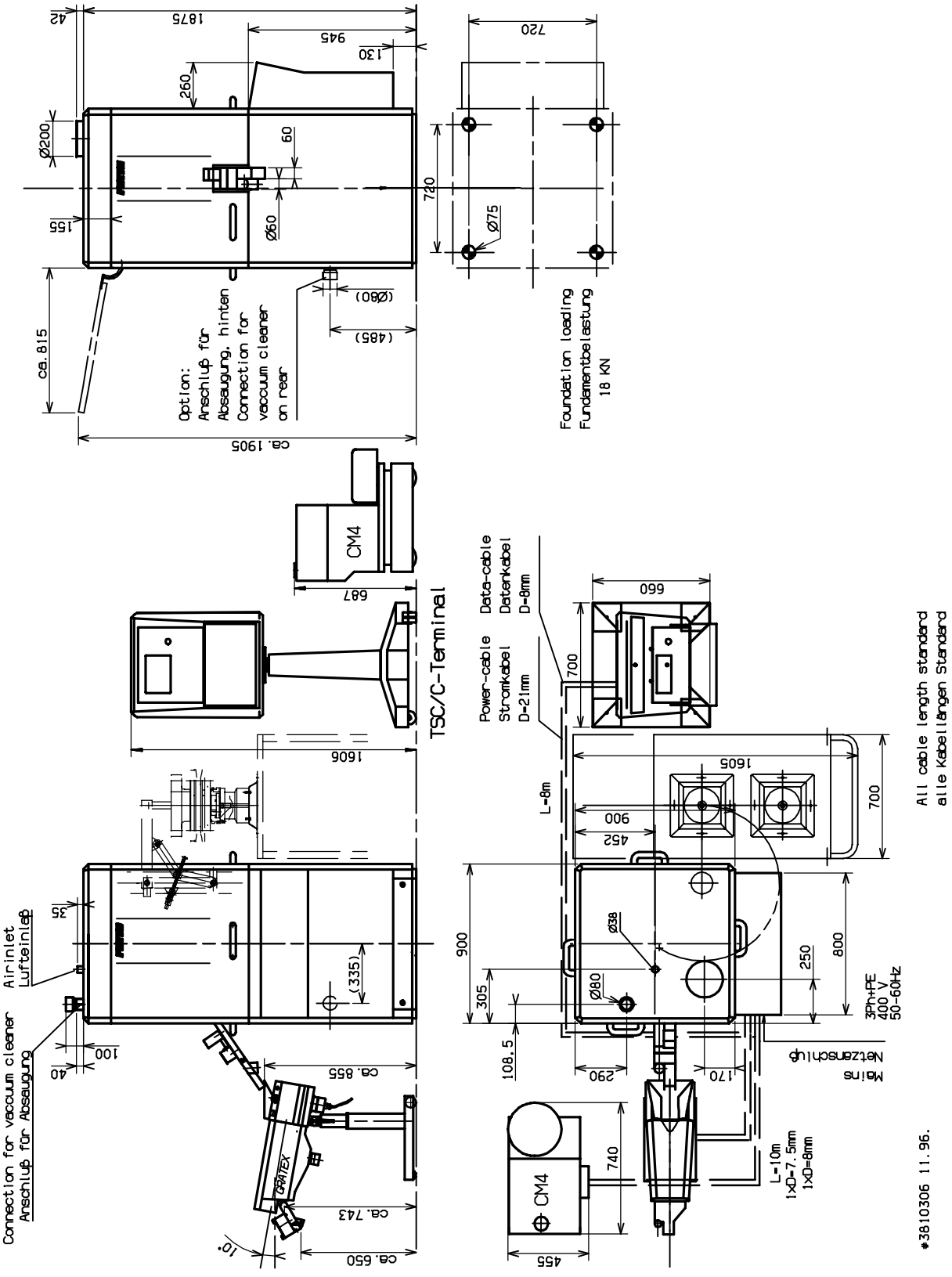
This results in a load of 4,5 kN for each of the 4 stands.

4.2. Erection drawing

The outer dimensions of P 1200 are 900 x 900 mm.

The mobile control terminal can be erected in any position. The required basic surface for the control terminal is approx. 700 mm x 660 mm.

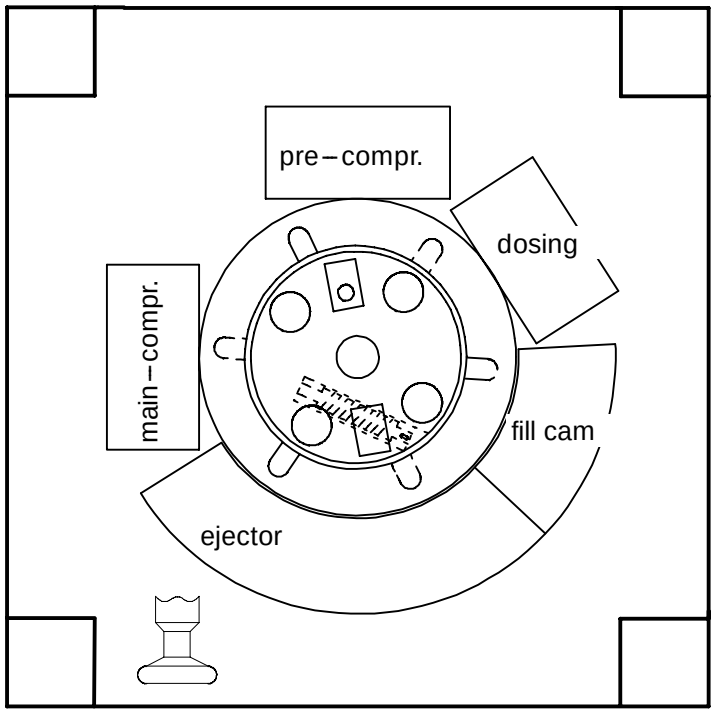
General erection drawing



Overview P 1200

electric connection

back

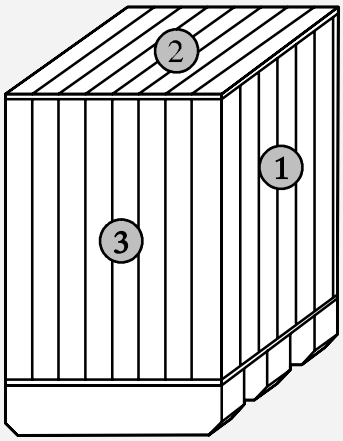


left side

right side

front

4.3. Unpacking and erection



First loosen and remove the two front ends of the crate. They are tighten on the side with hexagonal screws and can be dismantled using normal wrenches.

Then loosen and remove the lid of the crate.

The side walls are then loosened from the crate bottom and removed. They are fastened to the crate bottom with coach bolts and have to be untightened from the inside.

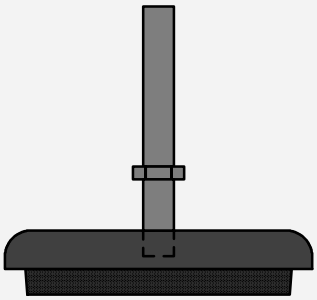
Dismantle the press from the bottom of the crate by untie and removing the 4 fastening bolts in the corners of the machine.

Lift the press from the bottom of the crate using a crane. For this purpose, screw a ring bolt (included in the supply) into the head section.

ATTENTION !

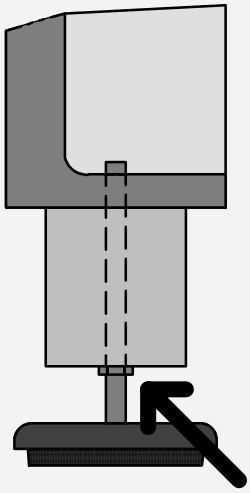
The press can be transported with a fork–lift truck. Ensure that the transport forks are as far apart as possible so that they are directly next to the corner reinforcements of the base plate.

ATTENTION !



Before placing the machine on the floor, the anti–vibration pads (machine feet) have to be fastened under the columns.

The press has to be exactly adjusted for the production process, preferably holding a spirit level to the die plate.



After adjusting, the lock nuts have to be screwed tight again.

Important: After unpacking, the entire delivery must be checked for any possible signs of transport damage; if any damage is detected, it must be reported immediately to the transport company responsible for making the delivery.

In addition, check that the delivery is complete by comparing with the delivery note.

Complaints can only be dealt with on immediate notification.

4.4. Cleaning

Various parts are preserved prior to the transport. These parts now have to be cleaned and cleared of all grease.

Petroleum ether or methyl alcohol are recommended as cleaning agent.

4.5. Supply connections

In order to connect up the power supply for P 1200, only the connection from the switchboard to the mains power has to be made.

P 1200 is rated for 400/420/440/460 Volt (± 10%) 50/60HZ 3~ AC current.

The Voltage has to be adjustet on the Transformer T170. The factorysettings for your machine could be viewed in the electrical drawings on page 1 (SLP).

Please check that your mains voltage corresponds to these values.

If necessary, a series transformer can be connected up to produce voltages of 230 to 600 V.

ATTENTION !

Arrange for an electrical engineer to carry out the main connection.

The machine is connected to the terminal with the cables and sockets marked accordingly.

On condition that the operating mains supply has a PE connection, no further measures are necessary to guarantee that the machine is free of interference.

All pertinent standards are to be observed as regards the operating mains supply and PE connection, such as

DIN 57100 Part 410 / IEC 364–4–41

DIN EN 60204 Part 1 / IEC 204–1

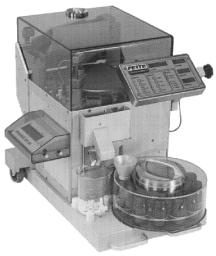
Special attention should be given to machines and production equipment in the direct vicinity of the machine if these are capable of generating intolerable power interruptions.

4.6. Connecting the periphery equipment

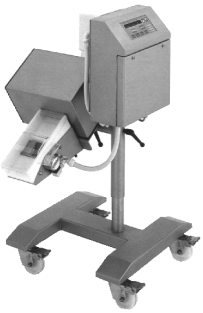
The periphery equipment is connected according to the machine layout in the circuit diagram (volume 3).

Gratex

Checkmaster



Metal Check



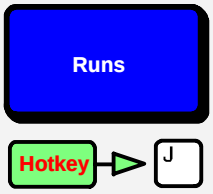
Loadingcenter

Vacuum cleaner

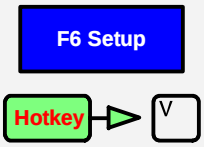
5. Initial commissioning

5.1. Approaching the reference marks.

Before initial commissioning, the reference marks have to be approached.



To approach the reference marks, the “test run” has to be selected. Menu “Runs” or button “J”.



Approach reference marks is selected from the menu “set–up” or button “V”.

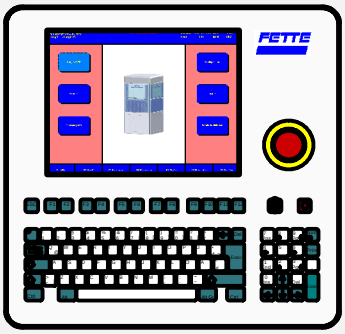
ATTENTION !

The dies must be empty when approaching the reference marks.

The reference points are:

Cyl. height main pressure:	:	17.00 +/–	0.02 mm
Cyl. height pre–pressure	:	17.00 +/–	0.02 mm
Filling depth	:	3.00 +/–	0.02 mm

5.2. Control overview



All inputs are made with this keyboard.

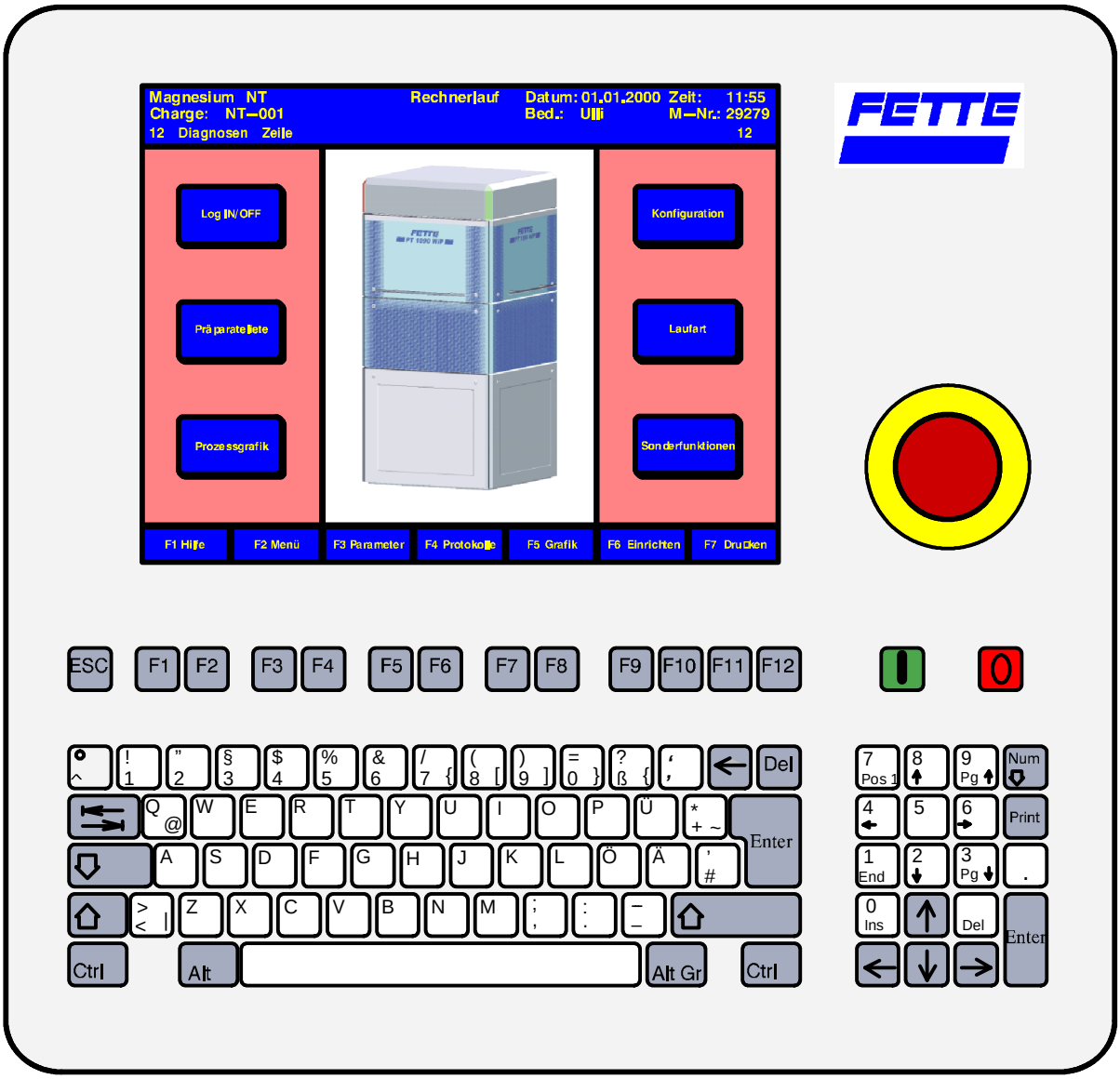
Once the data has been saved on the hard disk or transferred from a floppy to the hard disk, then these data no longer have to be entered by hand.

Nearly all letter keys have a double function.

They are also used as input keys for accessing lists and modes, for save commands etc.

The numerical keys also have a double function. On the one hand for the input of values, on the other hand for the selection of parameters, etc.

Overview control terminal



5.3. Key allocation

ESC Abort input or menu

F1 Help

F2 Menu

F3 Parameter

F4 Reports

F5 View

F6 Machine set–up

F7 Print report

F8 not in use

F9 Additional lubrication pulse

F10 Fill–O–Matic inching

F11 Rotor inching

F12 Rotor inching from punch to punch

Machine ON

Machine OFF

left

right

up

down

Enter input

Print Screen print

⌂ + L Language

⌂ + G Process graphic

Alt + X End program

Alt + – Machine OFF

Alt + * + ~ Machine ON

A List of formulations

B Parameter list “B”

C Parameter list “C”

D Parameter list “D”

E Parameter list “E”

F Parameter list “F”

G Parameter list “G”

H Current diagnoses

I Computer run

J Test run

K setting run

L Standard run

M not in use

N not in use

O Batch change

P Operator Log IN/OFF

Q @ Light ON / OFF

R not in use

S data back–up

T not in use

U not in use

V Approach reference marks

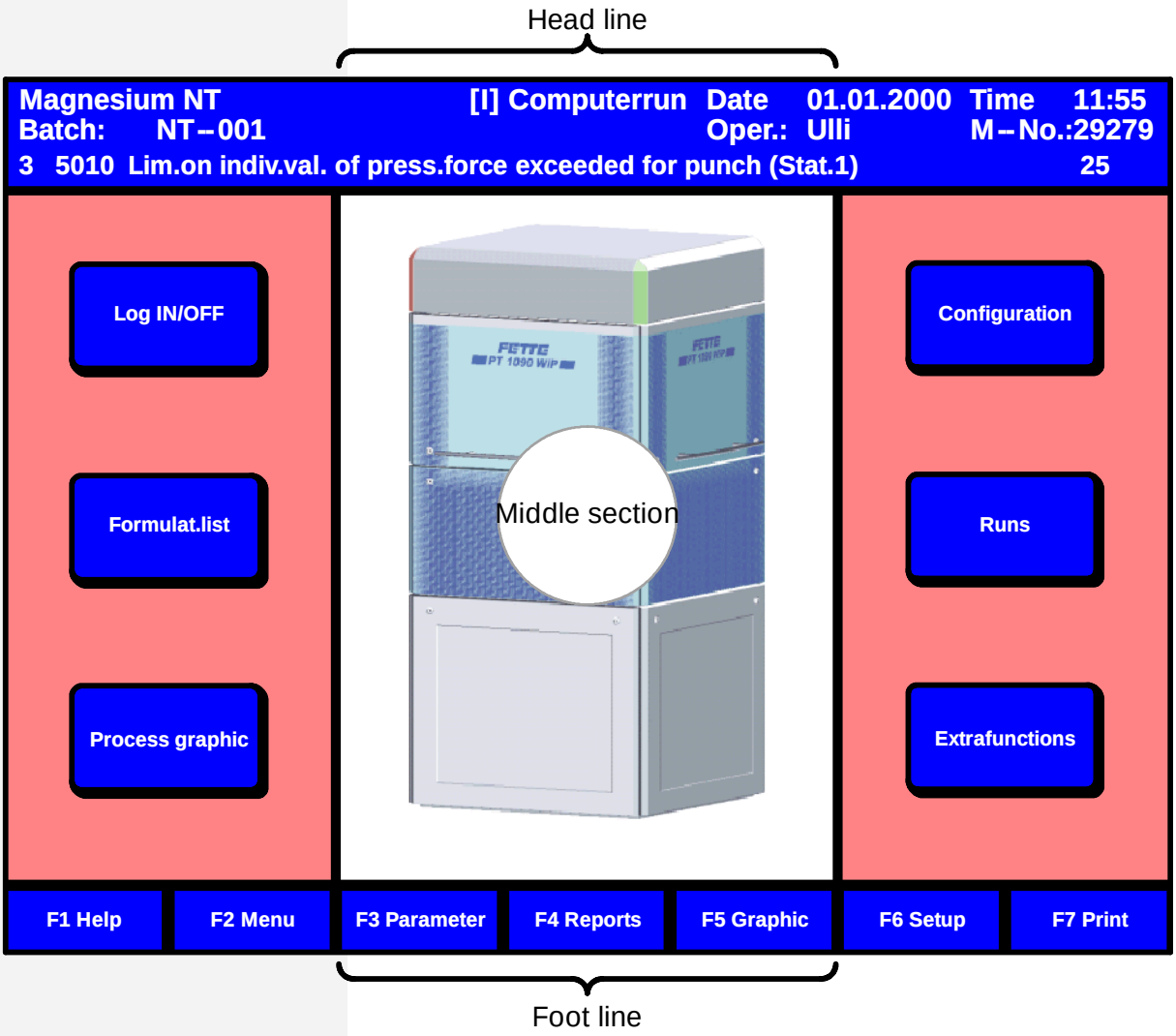
W Zero balance

X Machine number

Y Date

Z Time

5.4. The screen elements



The head line:

The following data are shown here:
- the name of the formulation
- the batch
- the machine run
- the date
- the operator
- the time
- the machine number

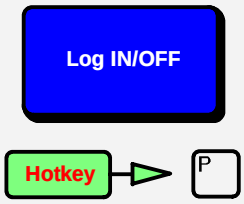
The middle section:

The diagrams and tables for current production are shown here.

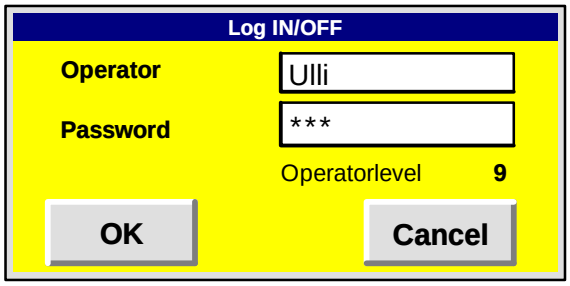
The foot line:

Other functions, diagrams or tables can be accessed from here directly or via a corresponding menu.

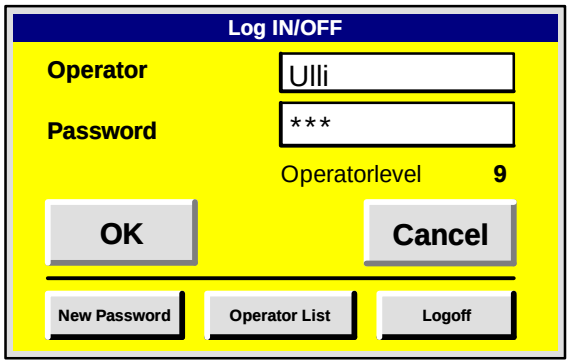
5.5. Operator password management



Access with “Log IN/OFF” or button ”P”.



The operator and password must be entered in the window. After confirming with “Enter”, the operator level and three additional buttons are shown.

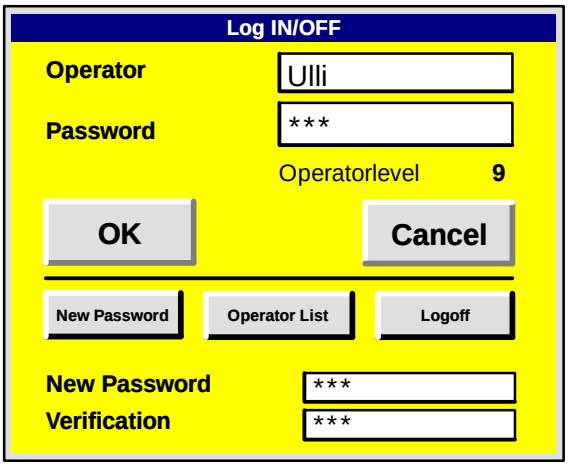


“OK” closes the window and the operator is shown in the head line.

“Abort” ends this function without change.

New Password

By pressing the button “New password, two fields are shown in which a new password can be entered.



OK

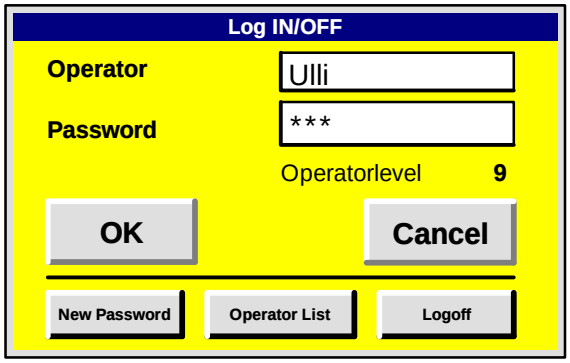
“OK” closes the window and the new password is adopted.

Cancel

“Abort” ends the function without change.

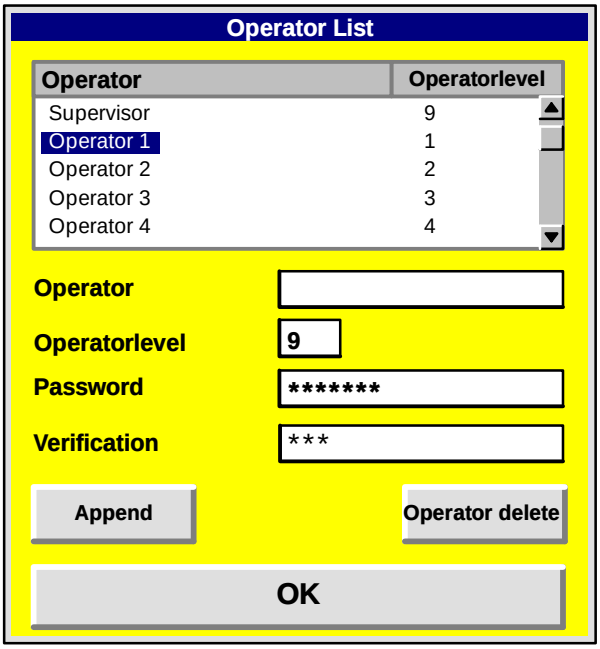
Logoff

Press the button “Log off” for the operator to log off.



Operator List

Press the button “Operator list” for a window for password management to be shown.



The operator (only with level 9) can enter a new operator here.

Append

“Add” includes the new operator in the list.

For operator and password, **at least three digits** have to be allocated.

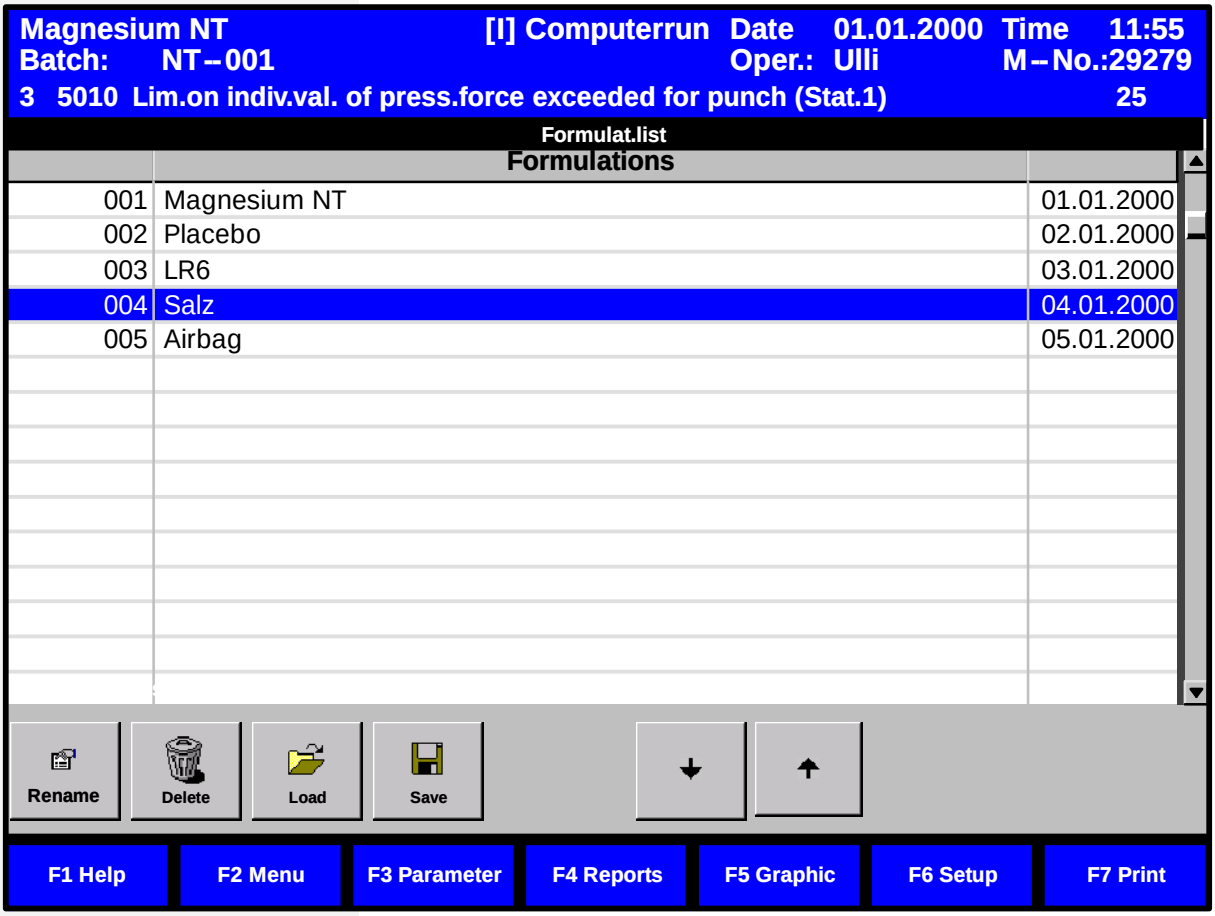
Operator delete

“Rem. operator” removes the selected operator from the list.

OK

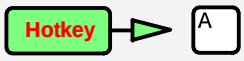
“OK” closes the operator list.

5.6. List of formulations



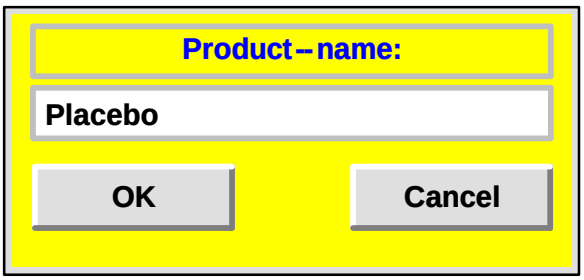
The saved formulation are featured in the list of formulations.

The maximum number of formulations is 99.



The entry in the list is selected with the cursor buttons.

In this window, the name of the selected formulation can be changed.



”OK” confirms the input.

“Abort” ends the function without change.

Yes

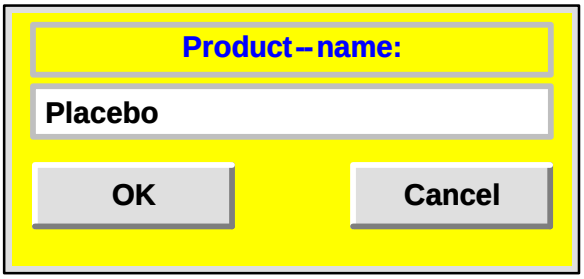
“Yes” deletes the formulation selected in the list.

No

“No” aborts the procedure.

“Load” loads the formulation selected in the list into the working memory.

“Save” saves the formulation in the working memory at the selected list position.

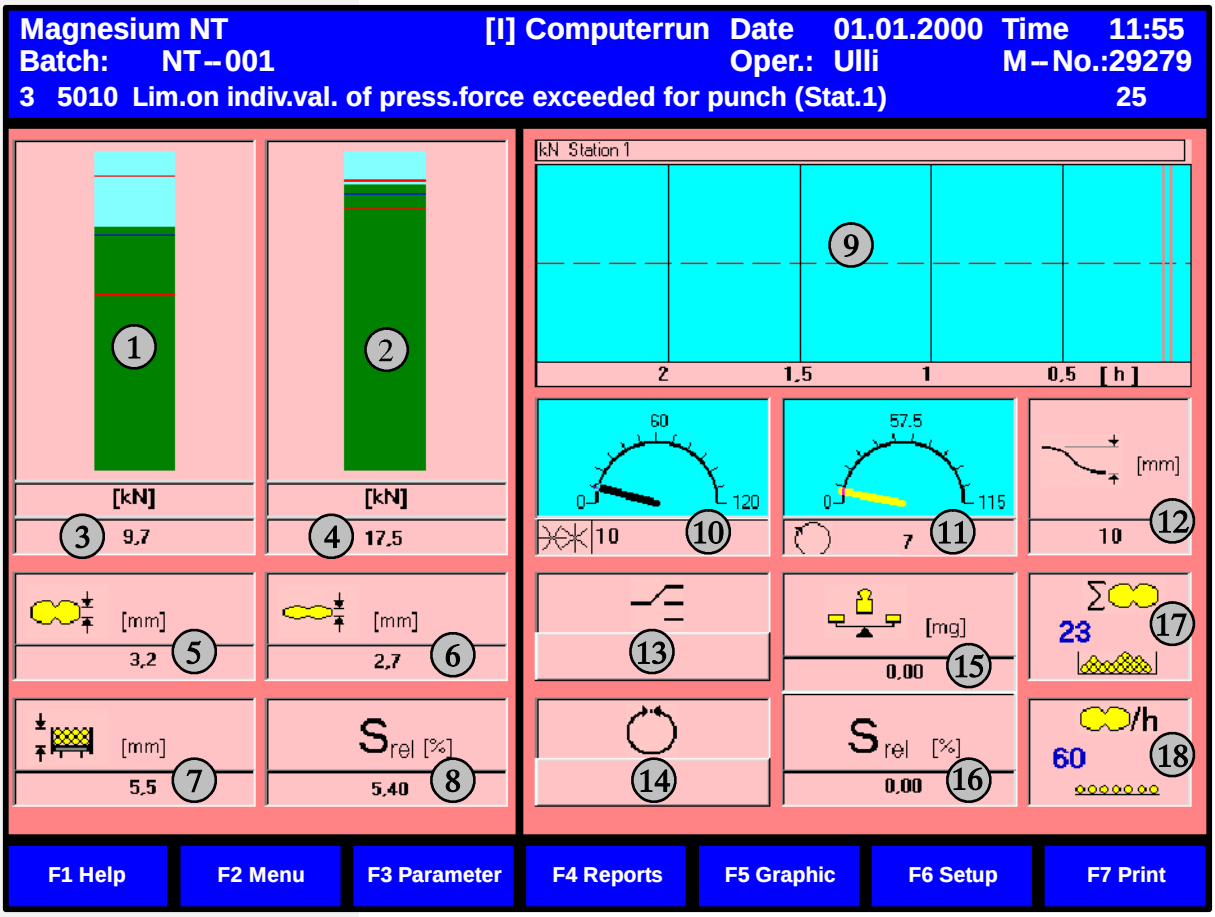


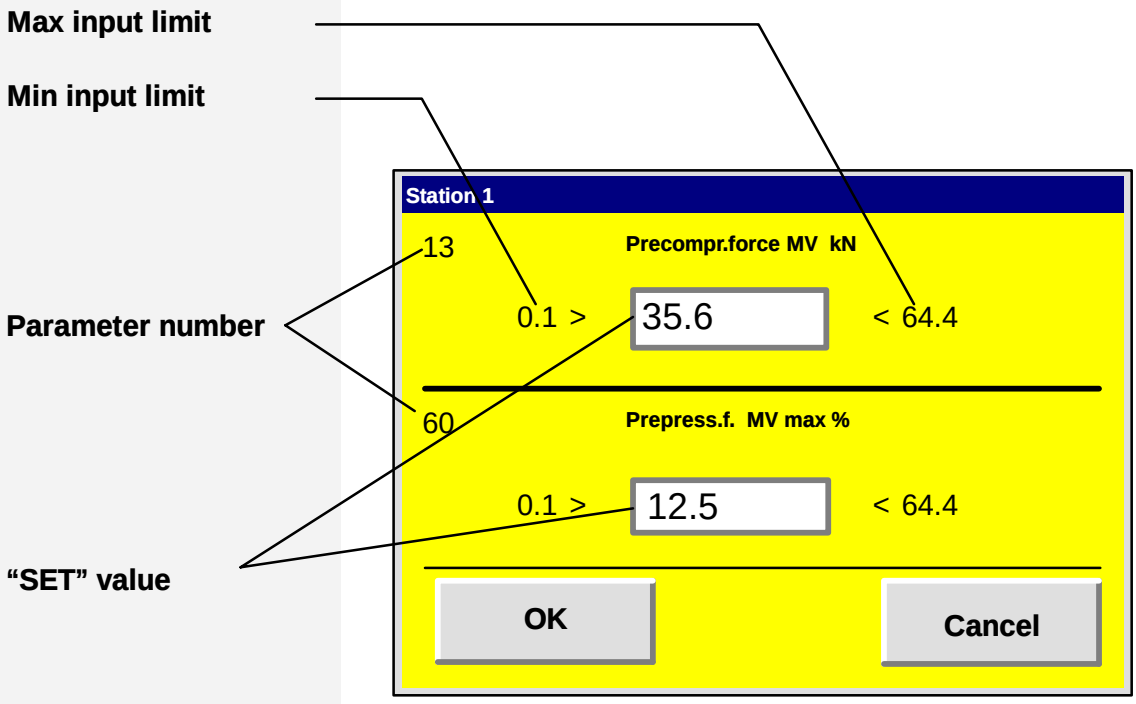
A new name can be entered in the window. If the list position is already occupied, the entry is overwritten.

“OK” saves the formulation

”Abort” ends the function without change.

5.7. Process graphic





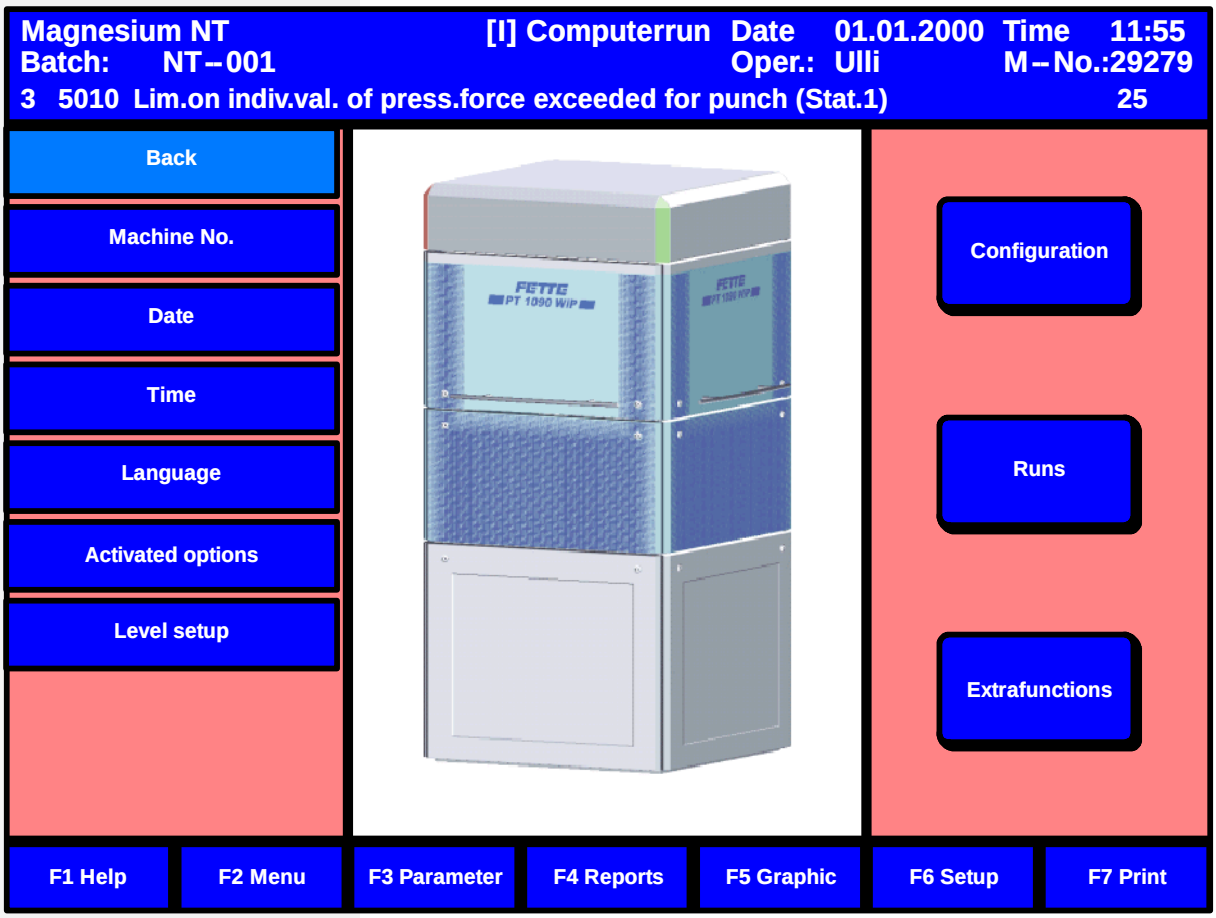
1. Bar diagram pre–pressure
2. Bar diagram main pressure
3. Pre–pressure pressing force
4. Main pressure pressing force
5. Web (cylindrical) height pre–pressure
6. Web (cylindrical) height main pressure
7. Tablet filling depth
8. Standard deviation main pressing force
9. Main pressing force progression over 2.5 hours
10. Fill–o–matic speed
11. Die plate speed
12. Mounted filling cams
13. Reject (ON / OFF)
14. Filling depth control (ON / OFF)
15. Tablet weight
16. Standard deviation tablet weight
17. Number of good tablets
18. Speed in tablets per hour (x1000)

The process diagrams show the main parameters necessary for production.

Only the “ACTUAL” values of the corresponding parameters are shown.

A window for changing the “TARGET” values is shown by selecting the corresponding fields.

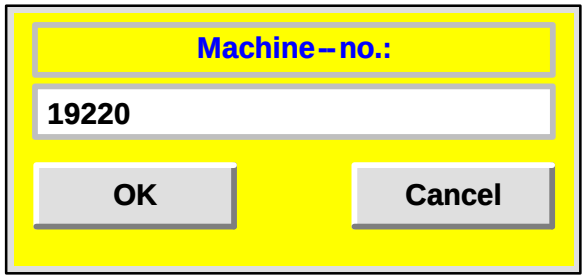
5.8. Configuration



Machine No.

Hotkey → X

The machine number is entered in this window. Both letters and numbers can be used.

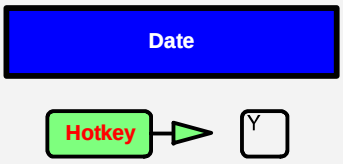


OK

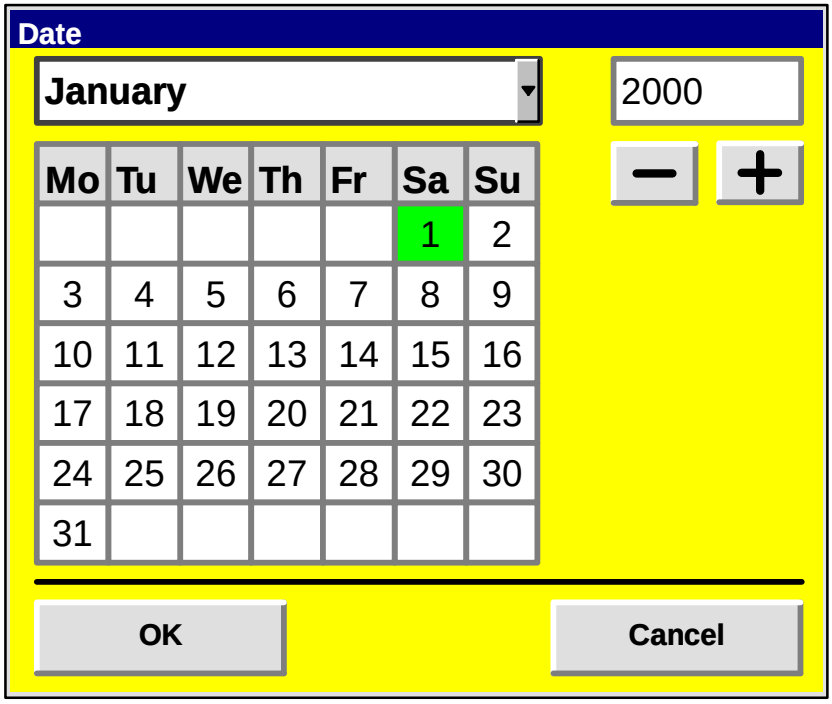
”OK” confirms the input. The machine number is shown in the head line.

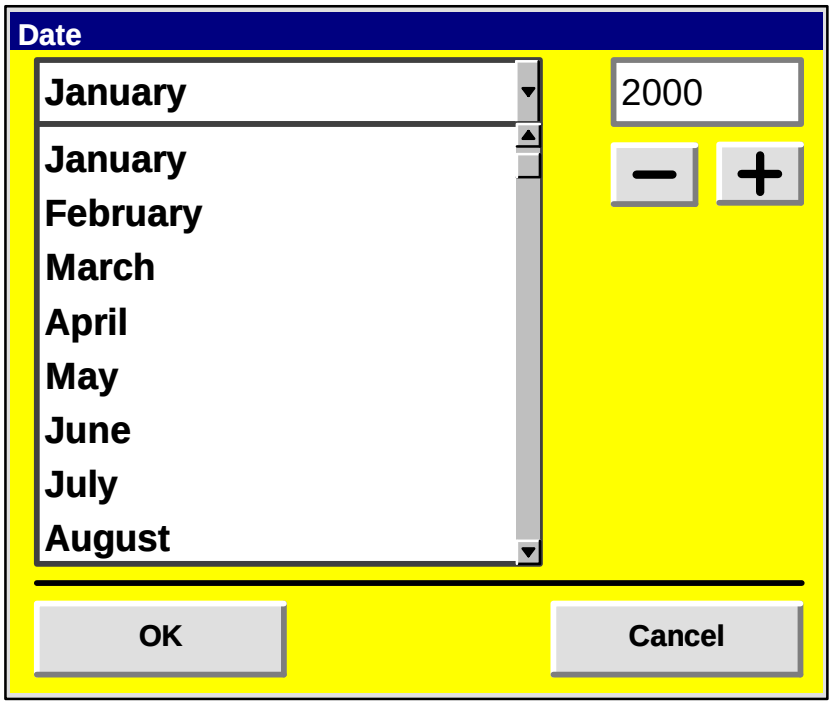
Cancel

“Abort” ends the function without change.



This window is used to adjust day, month and year





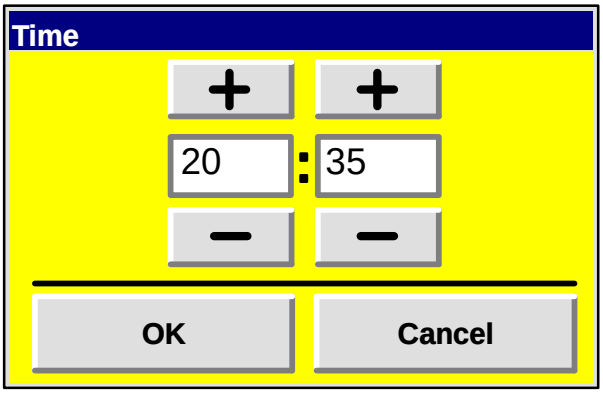
”OK” confirms the input. The date is shown in the head line.

“Abort” ends the function without change.

Time

Hotkey Z

The time is adjusted in this window.



OK

”OK” confirms the input. The date is shown in the head line.

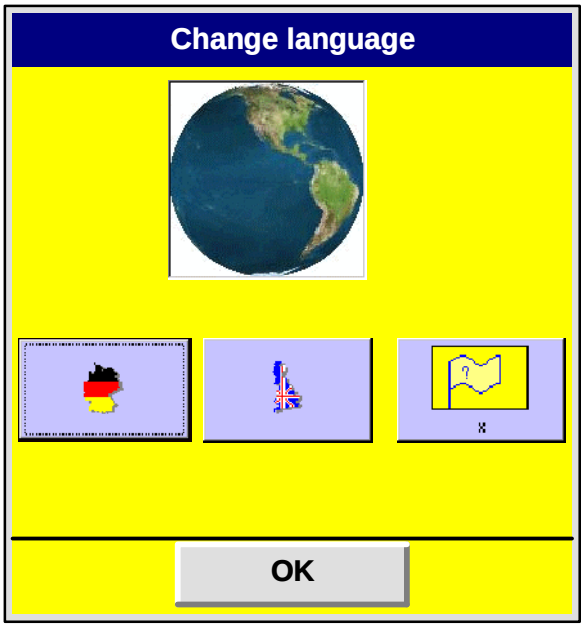
Cancel

“Abort” ends the function without change.

Language

Hotkey L

When several languages are installed, the language can be adjusted in this window.



When the machine is switched on, the standard language is always loaded.

OK

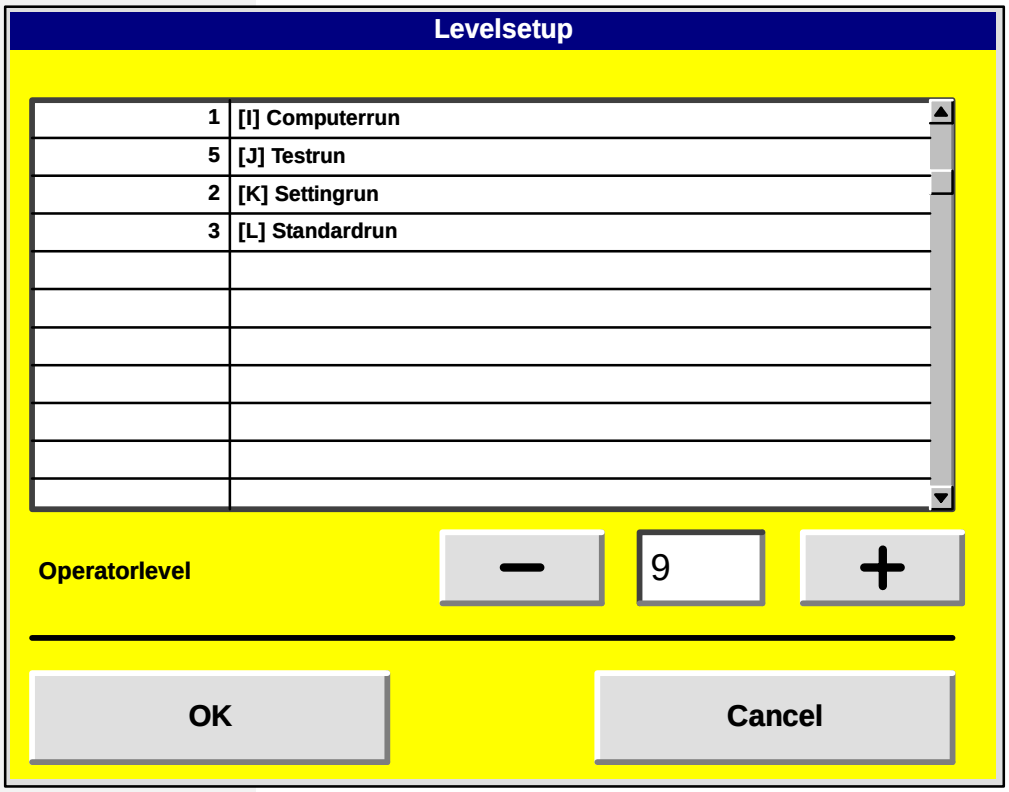
“OK” closes the window.

Level setup

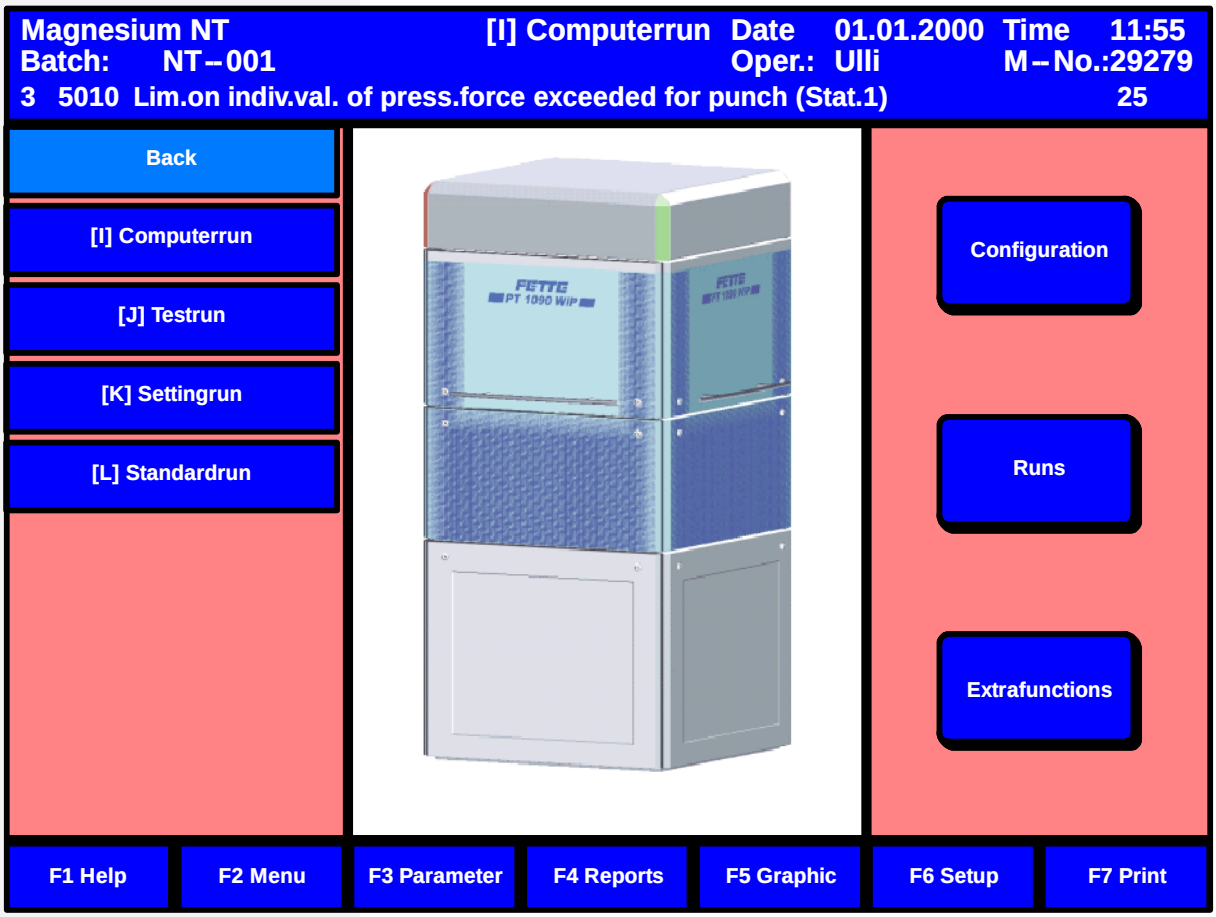
This list stipulates the level for various functions.

The operator with level 9 can change the level for the functions here.

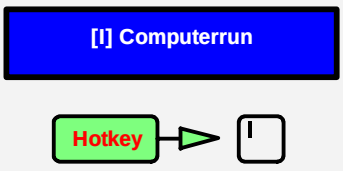
If the level is set to “0”, then this function can be carried out without the operator logging on.



5.9. Runs



The various runs are listed in this menu line.



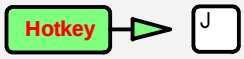
To change the computer run, the machine must be off.

After switching on the press with the main switch, the computer run appears automatically. In the computer run, all inputs and outputs (from computer to machine) are blocked, but nearly all entries are possible without the press being able to react.

The following functions are possible only in the computer run (with List of Formulation A selected at the same time):

Selection or entry of a formulation, copy of the formulation in the working memory to any list position.

[J] Testrun



The “test run” can only be selected when the machine is at a standstill.

The “test run” is the only run in which it is possible to approach the reference points and machine functions, to proceed with “zero balance” and to switch the Fill–O–Matic on and off for emptying.

The test run can be extended.

While approaching the reference points, it is not possible to leave the “test run”.

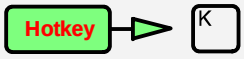
ATTENTION !

The reference marks may only be approached when the dies are empty.

Zero balance may only be carried out with unloaded measuring points.

- Main pressure station bottom and top
- Pre–pressure station bottom
- Punch stiffness measurement bottom and top
- Ejection force measurement.

[K] Settingrun



In the setting run, the production–relevant stop diagnoses are converted into warning diagnoses.

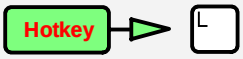
The discharge gate is not changed over, all tablets go through the bad channel.

The pressing force control is active if switched on.

The rejection function is not active if switched on.

All changes to the parameters are sent to the VME–BUS computer after confirmation and carried out.

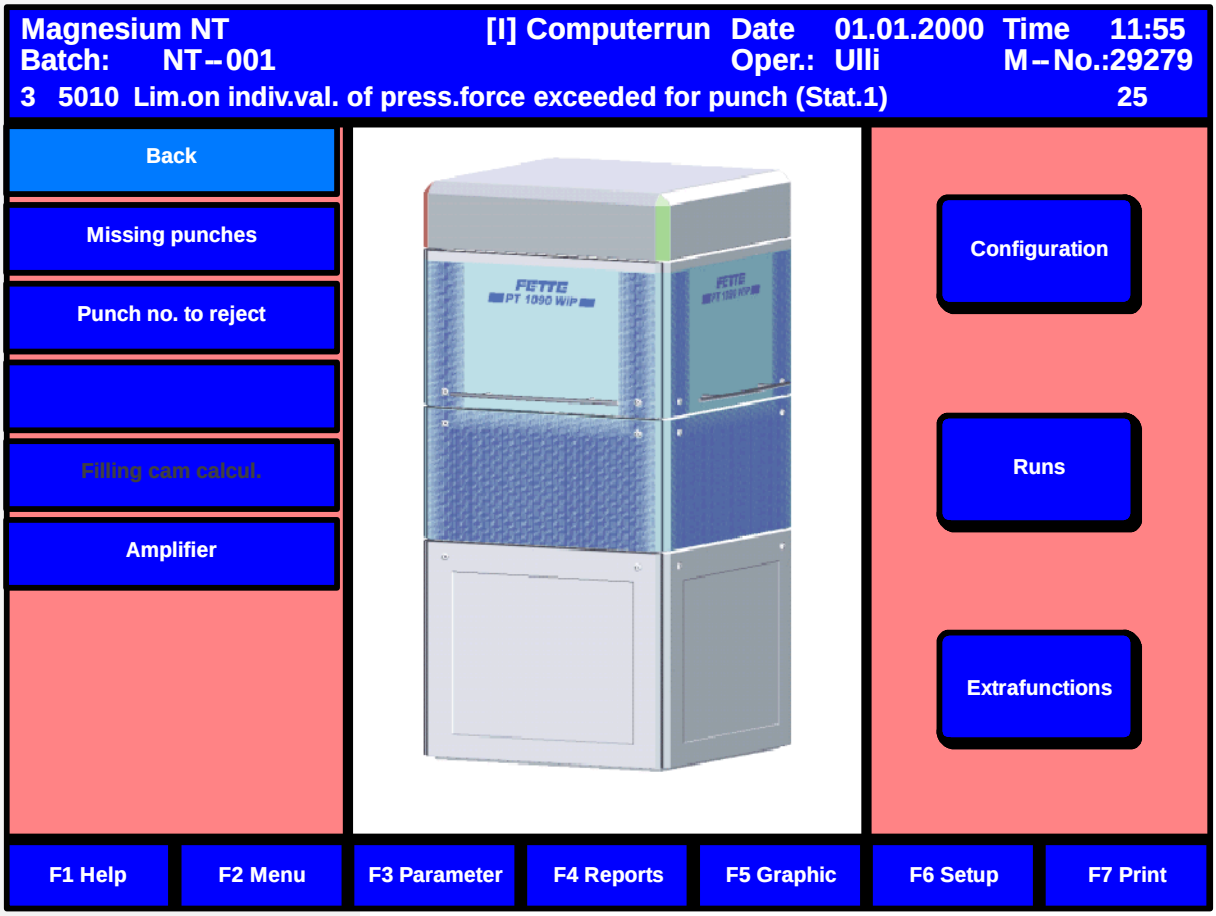
[L] Standardrun



The standard run is the production run.

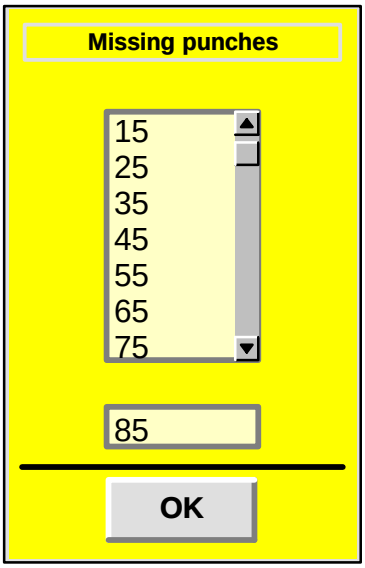
All diagnoses are active, all monitoring and control functions are carried out as far as these are switched on.

5.10. Special functions



Missing punches

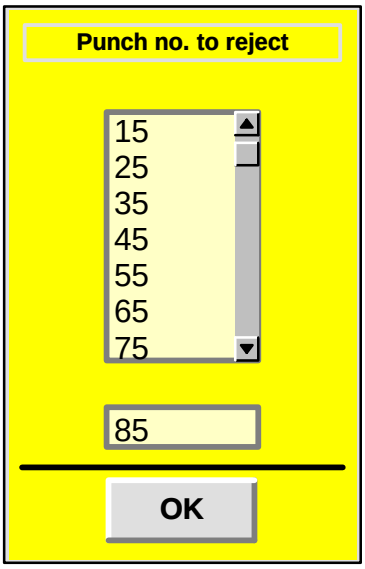
If the pressing process is to operate with fewer punches than possible in the rotor, then the punches which are not being used or which have been removed must be entered in the list.



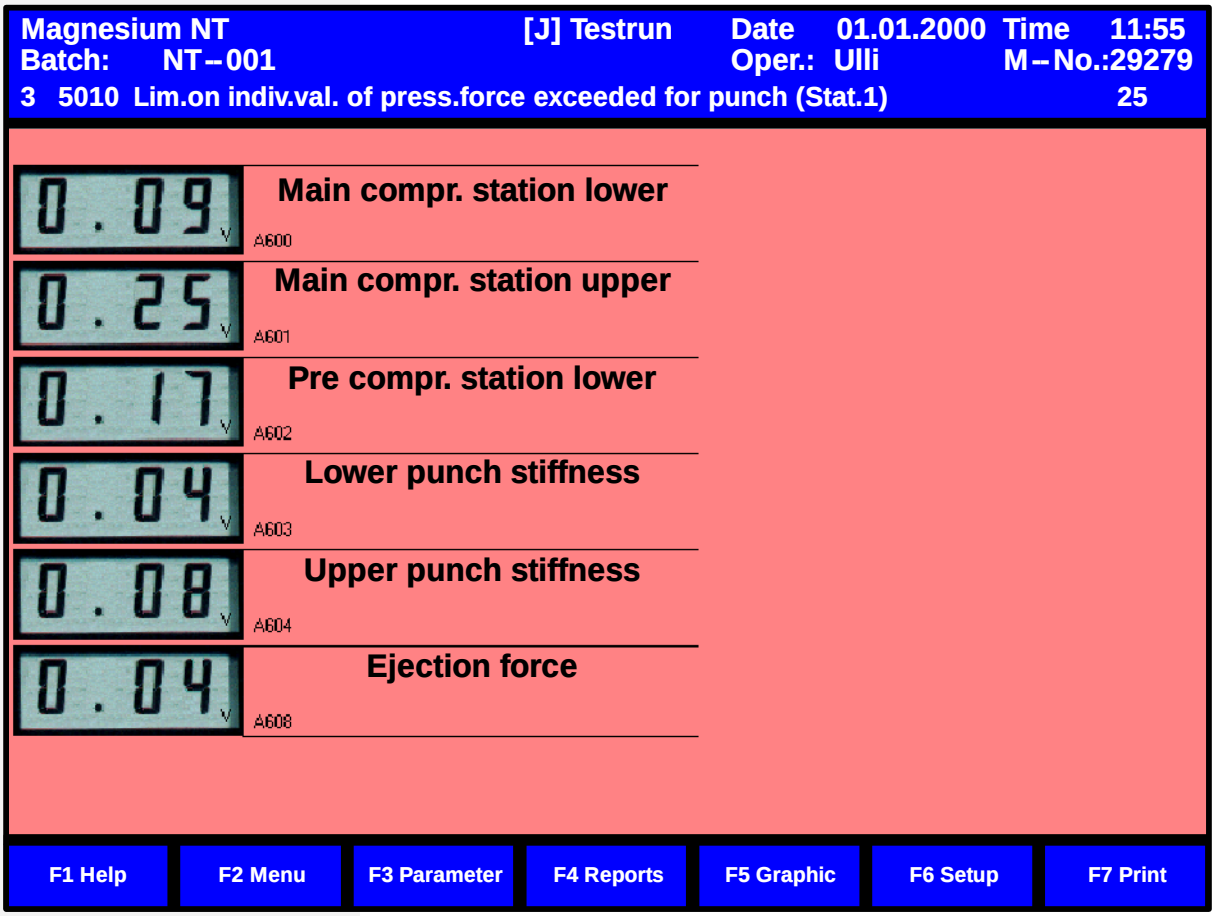
The punch stations entered in the list are not taken into account for pressing force evaluation.

Punch no. to reject

Punch stations which are to be rejected in every revolution can be entered here. For this purpose, the rejection function in “Parameter 33” must be switched on.



The normal reject function continues in parallel and rejects those tablets which are over or under the set limits.



By pressing the button amplifier, the screen mask with the displays of the analog values of the measuring amplifier is shown.

5.11. Inserting and adjusting the tools

The insertion of the tools, i.e. the upper punches, the dies and the lower punches, does not take long through the insertion and removal openings.

For this purpose, open the window flaps on the side of the tablet discharge. Remove the lower housing flap so that you can operate the hand wheel.

Remove:

- Tablet discharge, extraction, Fill–O–Matic, ejector,
- Installation ledge (2 clip levers)

After cleaning the bores with the die cleaner, you can now insert the dies.

When inserting the dies, ensure that these are inserted in a uniform way (marking always at the top or always at the bottom), as both sides of the die can be used.

ATTENTION !

Have you got the right filling cam ?!

Inserting round dies :

Place one die on each bore and push it into the receptacle bore by knocking carefully with the insertion tool.

ATTENTION !

Tighten die screws with maximum 10 Nm.

ATTENTION !

The dies must finish flush with the upper edge of the die plate.

Fitting the lower punches:

- Apply thin coat of oil to shafts and heads
- Insert lower punches
- Check free running of the punches
- Mount ejector

Fitting the upper punches :

- Apply thin coat of oil to shafts and heads
- Insert punches individually
- Mount installation ledge

Re–assemble the machine completely.

Insertion of guided tools :

- Remove parts as described.
- Also remove the holding ledge of the installation station (top)
- Push each individual die together with the upper punch
- into the die receptacle bore

ATTENTION !

On turning with the hand wheel, ensure that the upper punches are pulled up by hand so far that they can be taken over smoothly by the following cam system.

Further procedure as for round tools.

5.12. Starting the press for a new formulation:

1. Main switch ”ON” (at the switchboard).

After a comprehensive self–test of the computers, which can be followed on the screen, the menu now appears on the screen.

2. Operator logs on (button “P”)

3. After selecting the test run (button ”J”) :

- Approach reference marks (button “V”)
- and proceed with zero balance (button ”W”)

4. Change to computer run (button “I”)

5. Enter the formulation in the formulation list.

6. Enter the main parameters in the parameter list:

- Parameter 1 Tablets/h. (select a small value at first)
- Parameter 3 Fill–O–Matic speed
- Parameter 6 Filling depth
- Parameter 18 Web (cyl.) height main pressure
- Parameter 19 Web (cyl.) height pre–pressure

ATTENTION !

- ***Parameter 20 Penetration depth main pressure (Make sure that mechanical setting and specified values are the same)***
- ***Parameter 21 Penetration depth pre pressure (Make sure that mechanical setting and specified values are the same)***
- Parameter 35 Tabl. diameter or 36/37 for Oblong
- Parameter 38 Tabl. Form

ATTENTION !

- ***Parameter 39 Fill cams (Make sure that the mounted fill-cam and the specific fillcam is the same)***
- Parameter 47 Lubrication cycle 1 s
- Parameter 48 Lubrication cycle 2 top s
- Parameter 57 Number of tablets for statistics
- Parameter 59 Filling depth control number
- Parameter 66 Punch no. of the rotor

7. Select the setting run (button “K”),
   or standard run (button “L”)

   (All target values are approached)
8. Start press in inching mode
   first Fill–o–Matic (button F10)
   then rotor (button F11)
9. Machine “ON” (all other parameters as required)

5.13. Starting the press for long–term stored formulations:

1. Main switch ”ON” (at switch cabinet).

After a comprehensive self–test of the computers, which can be followed on the screen, the menu now appears on the screen.

2. The operator logs on (button “P”)
3. After every product change in test run (button ”J”) :
   - approach reference marks (button “V”)
   - and proceed with zero balance (button ”W”)
4. Change to computer run (button “I”)
5. Select formulation in the formulation list and load
6. Select setting run or standard run

(All target values are approached)

7. Start machine in inching mode
   first Fill–o–Matic (button F10)
   then rotor (button F11)
8. Machine “ON”

5.14. Switching the press off and on again

ATTENTION !

Switching off :

- Machine ”STOP”
- Computer run (button ”I”)
- Main switch ”OFF”

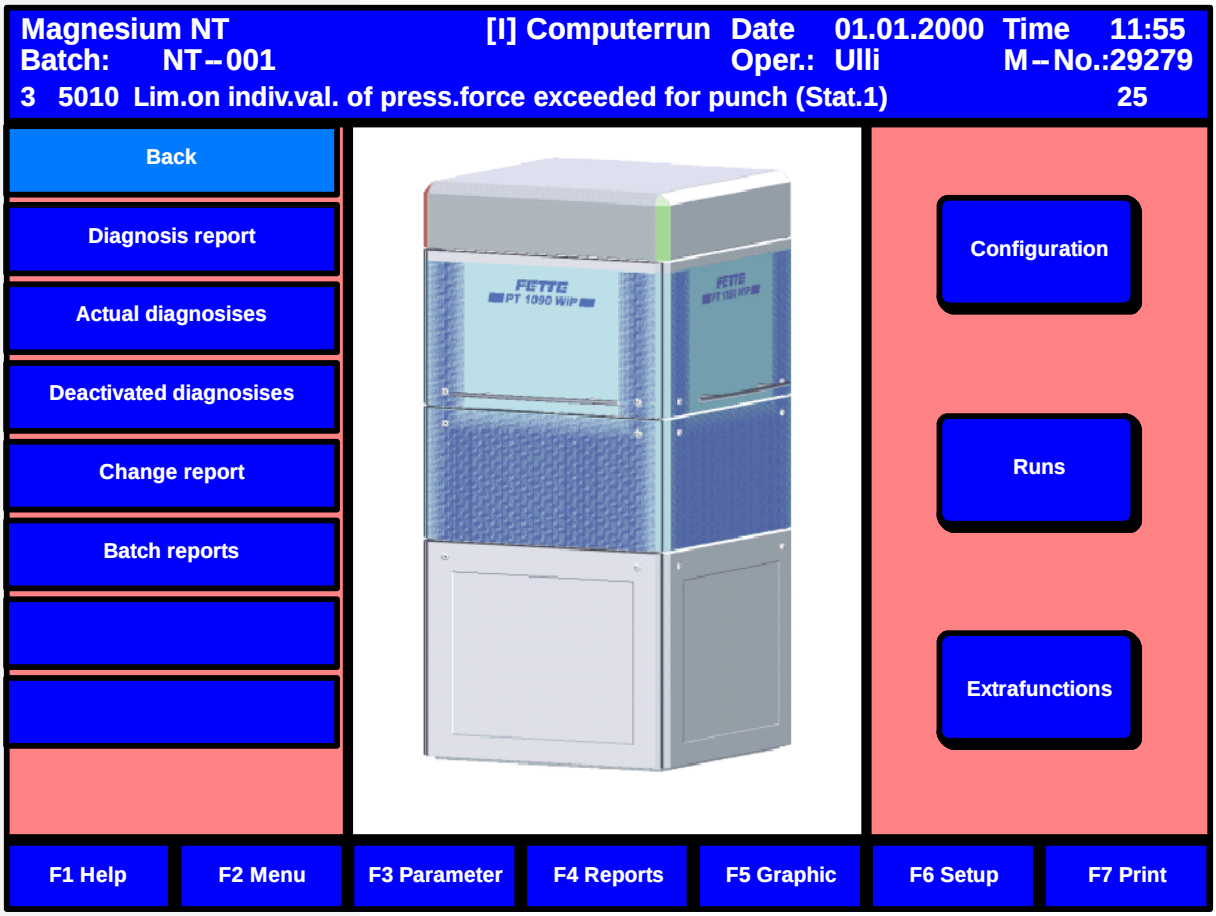
The computer shut down in a controlled session by the uninterruptible power supply and then disconnected from the mains.

ATTENTION !

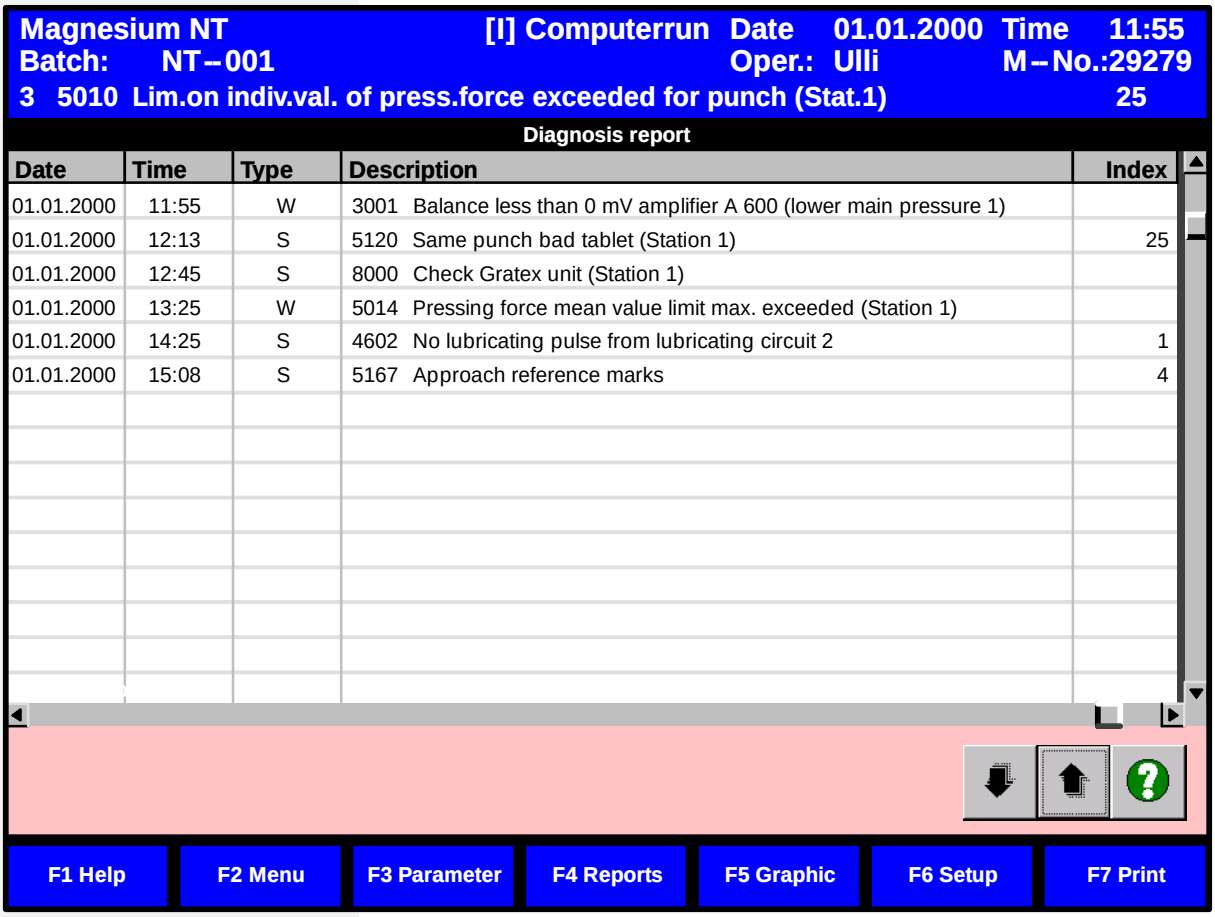
Switching on again:

- Wait until the computer is completely off at the control terminal.
- Then switch the main switch ”ON” again

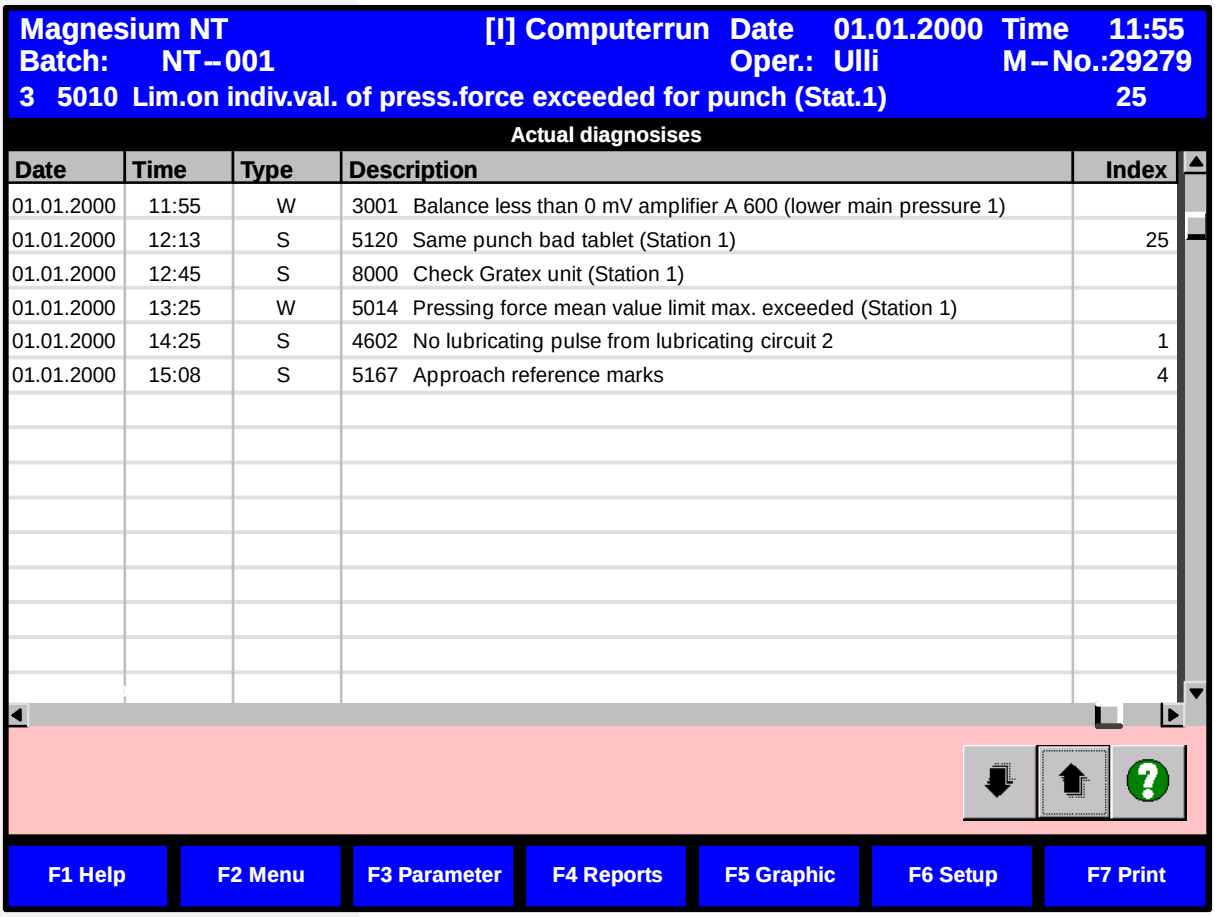
6. Reports


Magnesium NT
[I] Computerrun
Date 01.01.2000
Time 11:55
Batch: NT--001
Oper.: Ulli
M--No.:29279
3 5010 Lim.on indiv.val. of press.force exceeded for punch (Stat.1)
25
Back
Diagnosis report
Actual diagnosises
Deactivated diagnosises
Change report
Batch reports
Configuration
Runs
Extrafunctions
F1 Help
F2 Menu
F3 Parameter
F4 Reports
F5 Graphic
F6 Setup
F7 Print

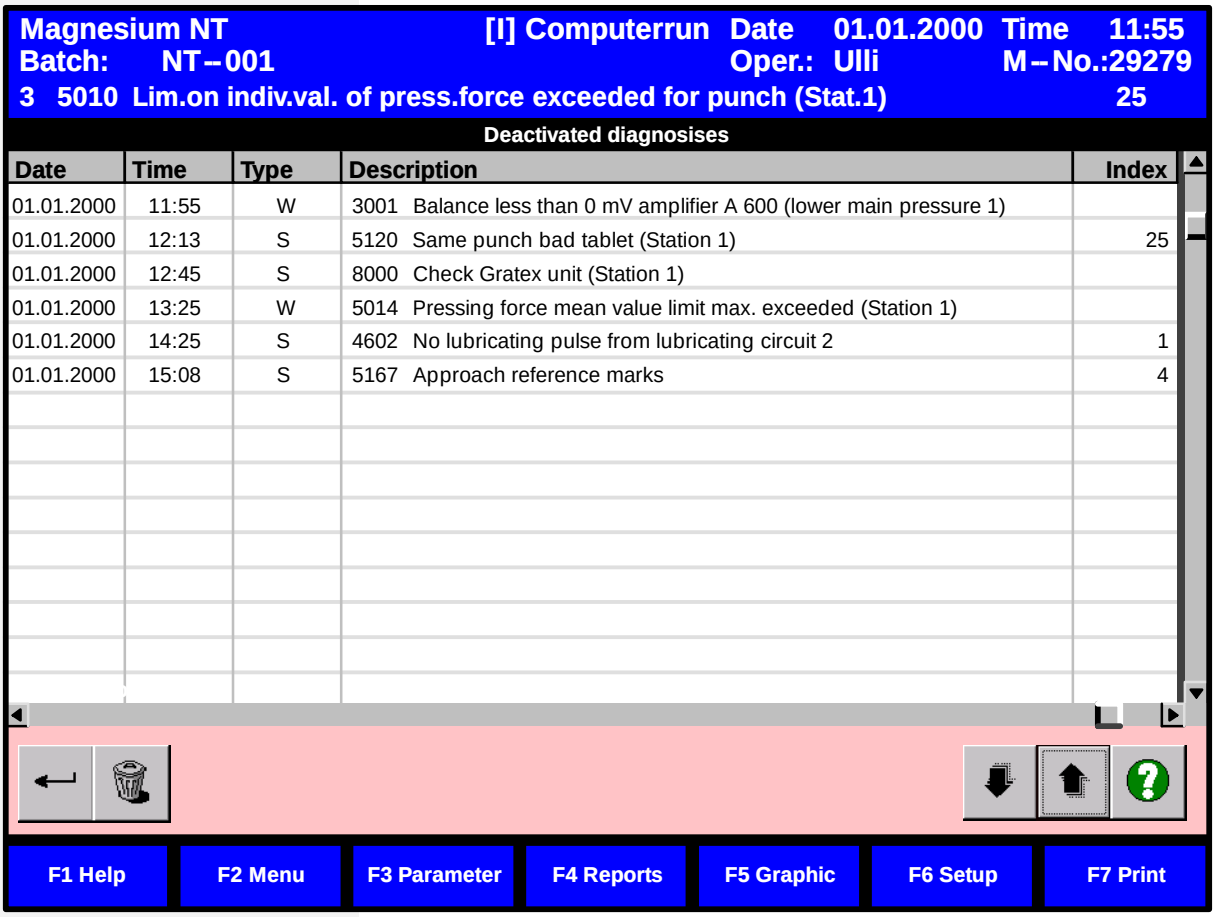
6.1. Diagnosis report



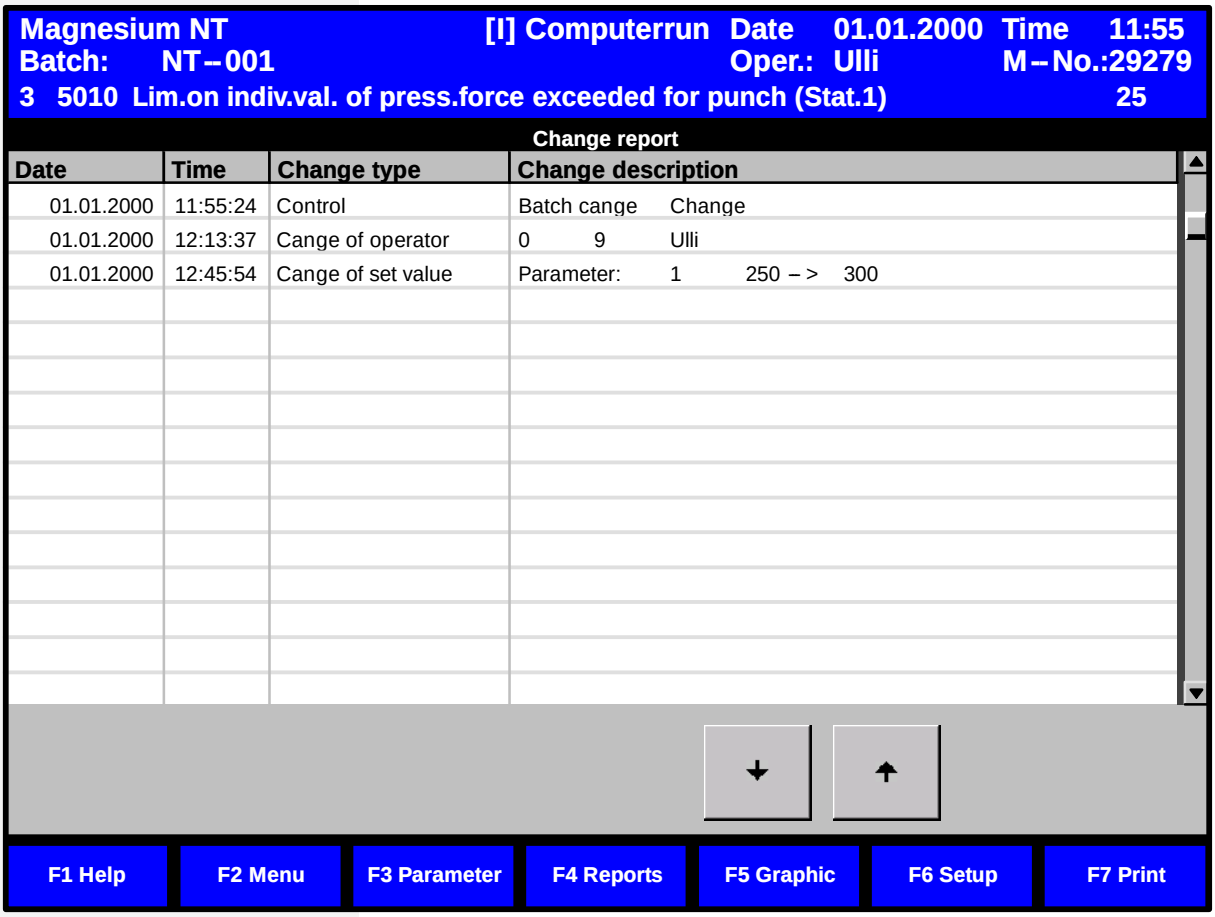
6.2. Actuel diagnosis



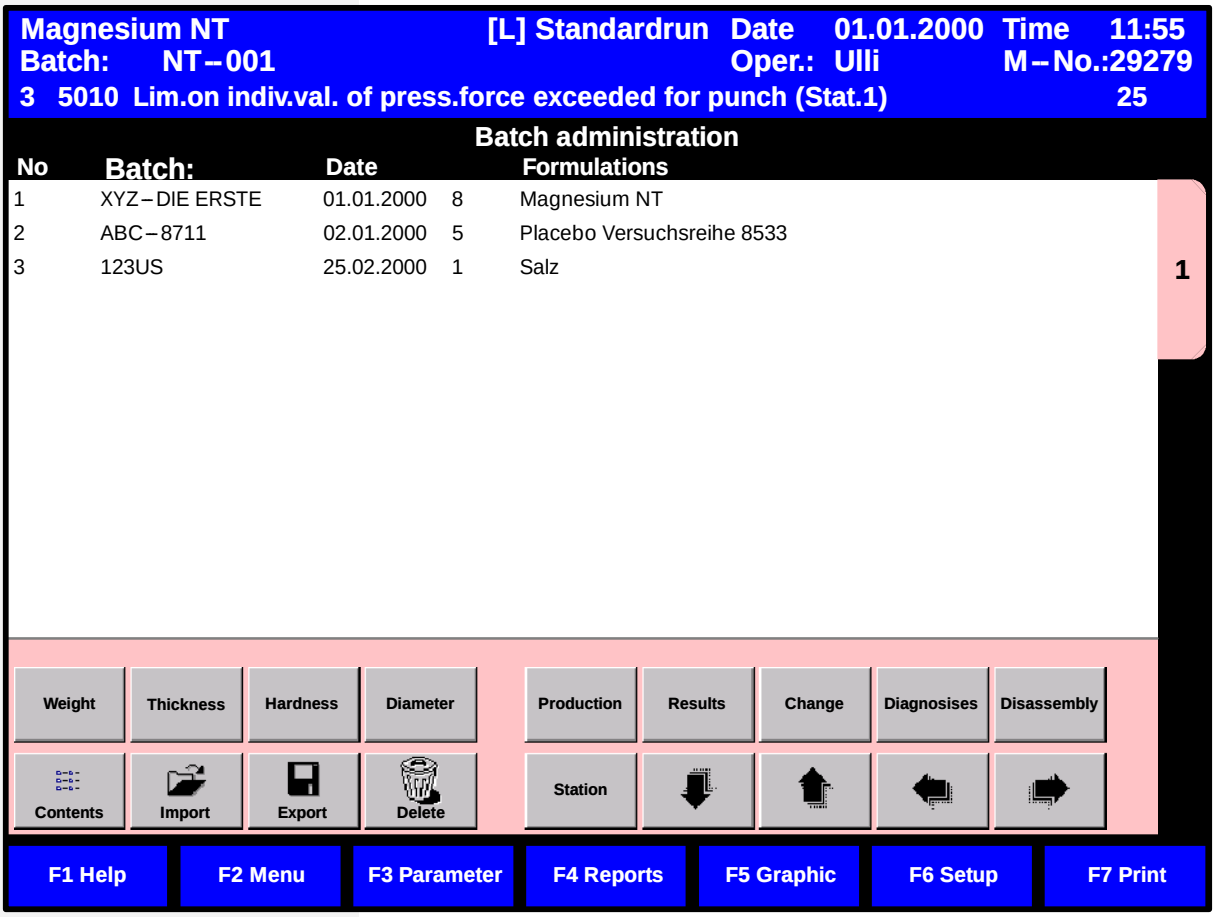
6.3. Deactivated diagnosises



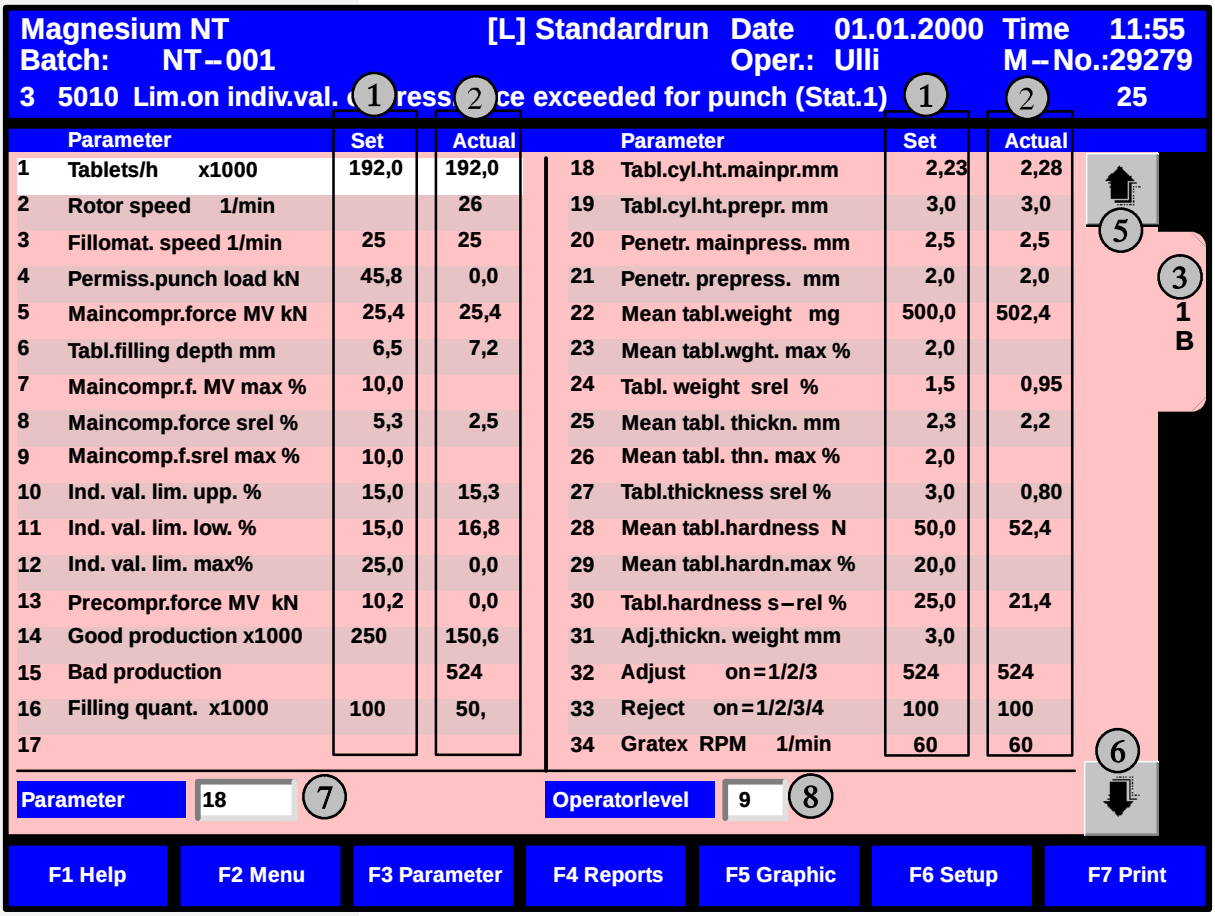
6.4. Change report



6.5. Batch administration



7. Parameter List



1. Set fields in which the parameter values are entered.
2. Actual fields with the values reported by the machine.
3. List identification.
5. Button for changing to previous list. (G, F, E, D, C, B)
6. Button for changing to next list. (B, C, D, E, F, G)
7. Direct pre--selection of a parameter from the current list.
8. Indicates the operating level for the particular parameter.

   Depending on authorisation of the operator, here it is possible to change the level for the selected parameter.

7.1. General parameters

After selecting the corresponding parameter list, you can change one of the parameters of this list.

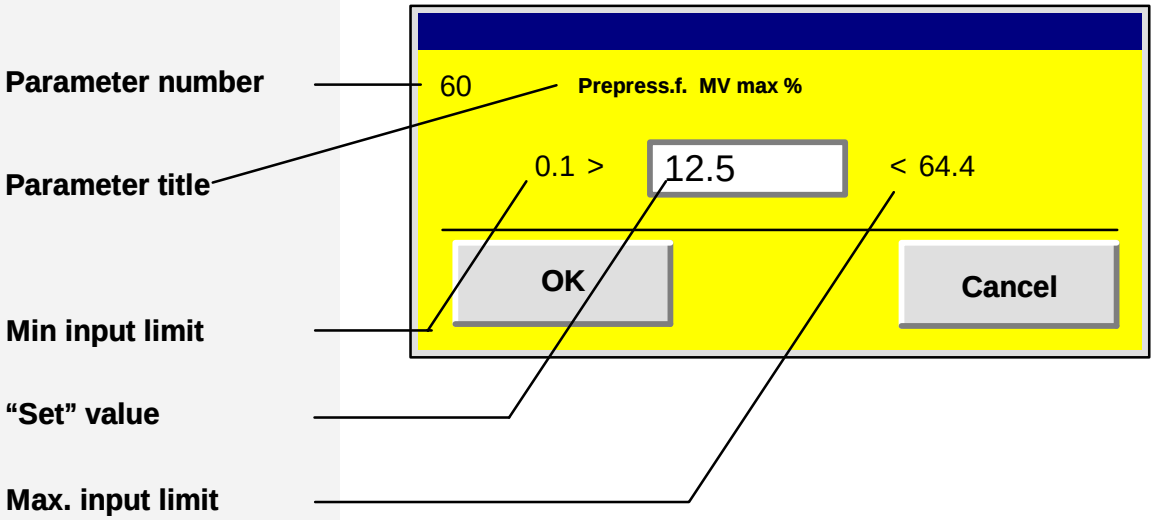
Select the parameter and press “ENTER”.

The input window shows:

- Station indication
- Parameter number
- Parameter title
- Minimum input limit
- Set value
- Maximum input limit

Confirm with the ENTER key or with button “OK”

To end an input without change, press the Escape key or press the button “Abort”



8. Parameter

8.1. Parameter list “B” (1 to 34)

1 **Tablets/h x 1000**

Tablets per hour times 1000

The set value in ”thousand” tablets per hour is entered here.

If the press is running, the currently produced number of tablets per hour is shown in the actual field.

The inputs take account of:

Parameter “41 Multiple punch” and
Parameter “66 No. of punches rotor”.

The input limits result from the minimum and maximum permissible speed of the rotor.

10.02.2000

2 **Rotor speed rpm**

Rotor speed in revolutions per minute

If the number of tablets to be produced is entered under “parameter 1”, then the current rotor speed is shown in the actual field of “parameter 2” in revolutions per minute.

It is not possible to make an input for this parameter.

10.02.2000

3 **Fill–o–matic speed rpm**

Fill–o–Matic speed in revolutions per minute

The Fill–o–Matic speed is entered in “parameter 3”. The current value is indicated in the actual field.

Rotor speed and Fill–o–Matic speed are independent of each other.

The Fill–o–Matic speed influences the filling properties and must be adjusted to the product or to the speed of the machine, in order to obtain an even filling.

The input limits result from various gear factors and the minimum and maximum permissible speed of the motor.

10.02.2000

4 **Permiss.punch load kN**

Permissible punch load in kN

Normally the set field of this parameter automatically shows the permissible punch load, after input of:

Parameter “35 Tablet diameter mm”
or
Parameter “36 Oblong narrow side mm” and
Parameter “37 Oblong long side mm” and
Parameter “38 Tabl. form”.

This automatically takes account of a value greater than “1” under parameter “41 multi punch times”.

If “parameter 4” is selected and at the same time “9” for manual input is selected under “parameter 38”, then a new value can be entered manually here instead of automatic assumption of the permissible punch load.

ATTENTION !

If the value entered for the punch is too high, this can cause damage to all punches!

If the compression force is greater than the permissible punch load, then the machine is stopped with a corresponding diagnosis with the punch number.

The compression force which causes the machine to stop is indicated in the actual field of “parameter 4”.

10.02.2000

5 **Main compr. force MV kN**

Main value for the main compression force in kN

The set compression force required for the tablet hardness is stated in “parameter 5”.

The actual field always shows the mean value which includes only the good tablets, i.e. not the rejected tablets.

This also means:

If all tablets are rejected, then no new mean value is shown.

For pressing force control, a second mean value is formed which includes all tablets, even the rejected ones.

If set pressing force and mean value differ, the machine makes an adjustment insofar as the adjustment (“parameter 32”) is switched on.

The mean values are formed from the number of tablets stated in parameter 57 “Statistic number of tablets ”.

10.02.2000

6 **Tabl. filling depth mm**

Tablet filling depth in mm

Each filling curve allows for a theoretical adjusting range for the filling depth of 5.5 mm.

e.g. filling cam “8”: permissible filling depth from 2.5 to 8.0 mm.

But in view of the fact that a certain adjustment distance has to be available for making adjustments, it is only possible to enter the range 3.0 to 7.5 mm.

The actual field shows the currently present actual value for tablet filling depth.

By installing corresponding filling cams,
it is possible to adjust the filling depth from 0.5 to 56 mm (depending on the machine design)

10.02.2000

7 **Main compr. f. MV max %**

Main compression force mean value maximum as a percentage

The maximum permissible deviation in set value compression force from “parameter 5” is entered in this parameter.

This mean value includes only the good tablets, i.e. not the rejected tablets.

Example:

Parameter 5 = 50 kN set value
Parameter 7 = 10 %

The machine is stopped with a corresponding diagnosis, when the actual value in “parameter 5” is greater than 55 kN or smaller than 45 kN.

The value which has switched the machine off is shown in the actual field of “parameter 5”.

10.02.2000

8 **Main compr. force srel %**

Relative standard deviation of main compression force as a percentage.

If the current actual value exceeds the set value, then the green lamps flash as a warning while the machine continues running.

10.02.2000

9 **Main compr. f. srel max %**

Relative standard deviation of main compression force as a percentage maximum.

If the current standard deviation from “parameter 8” is higher than the set value of “parameter 9”, the machine is stopped with a corresponding diagnosis.

The value which caused the machine to stop is displayed in the actual field of “parameter 8”.

10.02.2000

10 **Ind. val. lim. upp. %**

Individual value upper limit as a percentage (main compression force)

If the limit is exceeded, the actual field shows the value for approx. 3 seconds. The diagnosis line shows the corresponding diagnosis and the punch number.

If the reject function is switched on in “parameter 33”, then this tablet is rejected.

The limit in quantity of rejected tablets must be entered in “parameter 52”, “parameter 53” and “parameter 54”.

10.02.2000

11 **Ind. val. lim. low. %**

Individual value lower limit as a percentage (main compression force)

The individual value lower limit for the main pressing force is entered here as a percentage.

If the limit is exceeded, the actual field shows the value for approx. 2 seconds. The diagnosis line shows the corresponding diagnosis and the punch number.

If the reject function is switched on in “parameter 33”, then this tablet is rejected.

The limit in quantity of rejected tablets must be entered in “parameter 52”, “parameter 53” and “parameter 54”.

10.02.2000

12 Ind. val. lim. max%

Individual value lower and upper limit as a percentage maximum (main compression force)

The maximum individual value limit for main pressing force is stated here as a percentage (+/–).

If a main pressing force goes above or falls below this individual value limit, then the machine is stopped and the corresponding diagnosis appears.

The first pressing force which caused the machine to stop is displayed in the actual field.

The corresponding diagnosis with punch number appears in the diagnosis line.

10.02.2000

13 Pre compr. force MV kN

Pre compression force mean value in kilo Newton

The set value for the pre compression force can be entered here.

The mean values are formed from the number of tablets stated in parameter 57 “Statistic number of tablets”.

If this mean value is outside the limit stated in “parameter 60” then the machine is stopped with a corresponding diagnosis.

The value which caused the machine to stop is shown in the actual field.

10.02.2000

14 **Good production x 1000**

Good production times 1000 tablets

The number of tablets to be produced times 1000 can be entered here.

The actual field shows the current number of produced tablets times 1000.

Once the pre–selected number of tablets is reached, the machine is stopped with a corresponding diagnosis.

The good production counter is reset when a new batch number is entered.

10.02.2000

15 **Bad production**

Bad tablet production.

All rejected tablets are counted in the actual field of this parameter.

This includes:

All tablets produced in the setting run, all tablets rejected by the reject function and tablets rejected during start and stop of the machine.

The bad production counter is reset when a new batch number is entered.

10.02.2000

16 **Filling quant. x1000**

Tablet filling quantity (each) times 1000 per barrel.

Every time the tablet quantity is reached, the “Loading Center” is moved one position further.

When “0” is entered, the system does not move on further so that there is no counting of the barrels in the actual field of “parameter 73”.

When “0” is entered, in addition the value of the actual field of “parameter 16” is also reset, and the system moves on to the next barrel.

When a new batch number is entered, the actual value is again reset and here too the system moves on to the next barrel.

Only active with option: P6 “Loading Center”

10.02.2000

18 **Tabl. cyl. ht. main compr. mm**

Tablet cylindrical or web height main compression in mm.

The height and hardness of the tablet is changed by changing the web height.

When the pressing force control (“parameter 32”) is switched on, the weight of the tablet can be changed by changing the web height.

The web height is the cylindrical height of the tablet (without curvature or facet).

The actual value can deviate from the set value when an automatic adjustment has been made by a “Checkmaster”.

If the reference marks were approached in the “test run”, then the actual field shows the absolute dimension of the die plate upper edge so that the dimension can be checked and adjusted with the measuring punch.

10.02.2000

19 **Tabl.cyl.ht.pre compr. mm**

Tablet cylindrical or web height pre compression in mm.

The web height is the cylindrical height of the tablet (without curvature or facet).

If the reference marks were approached in the “test run”, then the actual field shows the absolute dimension of the die plate upper edge so that the dimension can be checked and adjusted with the measuring punch.

10.02.2000

ATTENTION !

20 **Penetr. main compr. mm**

Penetration depth main compression in mm.

The penetration depth is the depth to which the upper punch penetrates into the die.

The actual mechanical setting must be confirmed with the setting in parameter 20.

If you dont follow these advise it is possible that you wreck the machine.

10.02.2000

ATTENTION !

21 **Penetr. pre compr. mm**

Penetration depth pre compression in mm.

The penetration depth is the depth to which the upper punch penetrates into the die.

The actual mechanical setting must be confirmed with the setting in parameter 21.

If you dont follow these advise it is possible that you wreck the machine.

10.02.2000

ATTENTION !

22 **Mean tabl. weight mg**

Mean tablet weight in mg.

If samples are taken with the “Checkmaster”, then the set weight of the tablets is entered in the set field of “parameter 22”.

The current mean value of the last sample is shown in the actual field of this parameter.

The number of tablets per sample is entered in “parameter 101”.

The number of tablets after which the sampling procedure takes place is entered in “parameter 74”.

Only active with option: P12 “Checkmaster”

10.02.2000

23 **Mean tabl. weight. max %**

Mean tablet weight maximum as a percentage

The value of the last “Checkmaster” sample is shown in the actual field.

Example:

“Parameter 22” = 500 mg
“Parameter 23” = 5 %

The machine is stopped with a corresponding diagnosis when the actual value in “parameter 22” is higher than 525 mg or lower than 475 mg.

Only active with option: P12 “Checkmaster”

10.02.2000

24 **Tabl. weight srel %**

Relative standard deviation of tablet weight as a percentage

The value of the last “Checkmaster” sample is shown in the actual field.

If the actual value is greater than the pre–selected limit, then the machine is stopped with a corresponding diagnosis.

Only active with option: P12 “Checkmaster”

10.02.2000

25 **Mean tabl. thickn. mm**

Mean tablet thickness in mm

If samples are taken with the “Checkmaster”, then the set thickness of the tablets is entered in the set field of “parameter 25”.

The current actual mean value of the last “Checkmaster” sample is shown in the actual field of the parameter.

The number of tablets per sample is entered in “parameter 108”.

The number of tablets after which the sampling procedure takes place is entered in “parameter 74”.

Only active with option: P12 “Checkmaster”

10.02.2000

26 **Mean tabl. thickn. max %**

Mean tablet thickness maximum as a percentage

The value of the last “Checkmaster” sample is shown in the actual field.

Example:

“Parameter 25” = 5.00 mm
“Parameter 26” = 5 %

The machine is stopped with a corresponding diagnosis when the actual value in “parameter 25” is greater than 5.25 mm or smaller than 4.75 mm.

Only active with option: P12 “Checkmaster”

10.02.2000

27 **Tabl. thickness srel %**

Relative standard deviation of tablet thickness as a percentage

The value of the last “Checkmaster” sample is shown in the actual field.

If the actual value is greater than the pre–selected limit, the machine is stopped with a corresponding diagnosis.

Only active with option: P12 “Checkmaster”

10.02.2000

28 **Mean tabl. hardness N**

Mean tablet hardness in N

If samples are taken with the “Checkmaster”, then the set hardness of the tablets is entered in the set field of “parameter 28”.

The current actual mean value of the last “Checkmaster” sample is shown in the actual field of the parameter.

The number of tablets per sample is entered in “parameter 117”.

The number of tablets after which the sampling procedure takes place is entered in “parameter 74”.

Only active with option: P12 “Checkmaster”

10.02.2000

29 **Mean tabl. hardn. max %**

Mean tablet hardness maximum as a percentage

The value of the last “Checkmaster” sample is shown in the actual field.

Example:

“Parameter 28” = 50 N
“Parameter 29” = 5 %

The machine is stopped with a corresponding diagnosis when the actual value in “parameter 28” is greater than 52.5 N or less than 47.5 N.

Only active with option: P12 “Checkmaster”

10.02.2000

30 **Tabl. hardness s--rel %**

Relative standard deviation of tablet hardness as a percentage

The value of the last “Checkmaster” sample is shown in the actual field.

If the actual value is larger than the pre–selected limit, then the machine is stopped with a corresponding diagnosis.

Only active with option: P12 “Checkmaster”

10.02.2000

31 **Adj. thickn. weight mm**

The weight control is set to “proportional” by entering “parameters 31”

The volume of the tablet (including curvature or facet) can be used to reckon back to the theoretical height of a purely cylindrical tablet for a given diameter. This value is the “adjustment thickness” to be entered here.

Proportional adjustment here means that for a deviation in weight, the volume of the tablet (including curvature or facet) is changed proportionally by means of the adjustment thickness.

Since a purely cylindrical form is rarely used, the adjustment thickness has a value which is between the actual tablet thickness and the tablet web height.

The necessary web height change for weight optimisation is calculated from the adjusting thickness. A weight deviation of x% results in a web height change with x% of the adjustment thickness.

Example:

A weight deviation (difference between set mean and actual mean) of 1% requires a volume change of 1%. If the entered adjustment thickness if 2 mm, then the web height is changed by 0.02 mm.

When ’0’ is entered, the proportional control is switched off, the web height is changed by 1% of the set web height rounded off to full mm; for a deviation of more than 5%, the machine is switched off with corresponding diagnosis.

If “parameter 98” is enabled and not equal to “0”, the proportional control only acts in the first production hour; after this, the system continues with the normal step size control.

Only valid for option: P 12 “Checkmaster” and S 19b weight control via adjustment steps with proportional step size.

10.02.2000

32 **Adjust on=1/2/3**

Adjustment switched on with functions 1,2 or 3.

For:

“0”, the adjustment is switched off.

“1”, adjustment is via pressing force.

“2”, adjustment is via pressing force and tablet weight.

“3”, adjustment is via pressing force, tablet hardness and tablet weight.

“2” + “3” only valid with option: P 12 “Checkmaster”

Description:

“1” = Pressing force control (control circuit 1).

If the deviation from “parameter 5” maincompr. force MV is greater than 1%, then “parameter 6” Tabl. filling depth mm is increased or decreased.

“2” = Weight control (control circuit 2) (includes 1)

If the deviation from “parameter 22” Mean tabl. wght. is greater than 1%, then “parameter 18” Tabl.cyl.ht.mainpr. is increased or decreased.

The resulting change to mean main pressing force activates the pressing force control, which increases or decreases “parameter 6” Tabl. filling depth.

“3” = Hardness control (control circuit 3) (includes 1+2)

If the deviation from “parameter 28” Mean tabl. hardness is greater than 5%, the pressing force control is switched off and “parameter 18” Tabl.cyl.ht.mainpr. increased or decreased.

The resulting changed mean main pressing force is set in the actual field of “parameter 5” as new default for pressing force control.

After this the pressing force control is switched on again.

See also manual volume 2, chapter Description of Functions: pressing forces, control circuits.

10.02.2000

33 **Reject on=1/2/3/4**

Rejection procedure switched on with function 1, 2, 3, or 4

For:

“0”, the rejection procedure is switched off.

“1”, the rejection procedure only takes place for the last tablets after stopping the machine, and for the first tablets after starting the machine, i.e. when the machine stops the gate is in the rejection position.

“2” , both the first and last tablets and all other “bad” tablets are rejected.

Bad tablets are tablets which lie beyond the individual values in “parameter 10” and “parameter 11”.

“3”, the last tablets and all other “bad tablets” are rejected.

At the start, the rejecting gate is kept in the good position. Before the discharge gate changes to the good position, the reject gate is activated.

“4”, all “bad tablets” are rejected.

At the start and stop, the rejecting gate is kept in the good position, as these tablets are rejected by the discharge gate.

The position of the reject gate is monitored by a proximity switch.

If the position or the reject procedure is wrong, the machine is stopped with a corresponding diagnosis.

10.02.2000

34 **Gratex speed rpm**

Gratex speed in revolutions per minute

The speed for the tablet dedusting unit is pre–selected here.

If “0” is entered, the Gratex speed is automatically set to 0.8 times the rotor speed.

The Gratex unit is switched on at the same time as the machine

After the machine is switched off, the Gratex runs on until all the tablets have been discharged.

10.02.2000

8.2. Parameterliste “C” (35 to 68)

35 Tablet diameter mm

Tablet diameter in mm

The diameter of the tablets is entered for definition of the tolerable punch load and as default for the “Checkmaster” (hardness and diameter measurement).

Once the diameter and tablet form have been entered in “parameter 38”, the corresponding permissible punch load appears in the set field of “parameter 4”.

The permissible entry of tablet diameter depends on the number of punches of the rotor stated in “parameter 66”

With the options P12 “Checkmaster” and S620 diameter measurement, the mean value is also shown after a “Checkmaster” sampling procedure.

10.02.2000

36 Oblong narrow side mm

The narrow side of the tablets is entered for definition of the permissible punch load.

If this parameter is used, the long side also has to be entered, together with the tablet form “parameter 38”

The narrow side may not be greater than the long side.

10.02.2000

37 Oblong long side mm

The long side of the tablets is entered for definition of the permissible punch load and as default for the “Checkmaster” (hardness and diameter measurement).

If this parameter is used, the narrow side also has to be entered, together with the tablet form “parameter 38”

10.02.2000

38

Tabl. Form: 1,2,3,4,5,9

Tablet form

The tablet form has to be entered for calculation of the permissible punch load.

forms:

“1” : flat tablets

“2” : tablets with facet

“3” : slightly curved tablets
(radius greater than 1.5 x d*)

“4” : coated curved tablet
(radius greater than 0.7 x d* to 1.5 x d*)

“5” : spherical tablets
(radius to 0,7 x d*)

* d = tablet diameter or oblong narrow side

“9” : manual entry in “parameter 4”

ATTENTION !

If the value entered for the punch is too high, this can cause damage to all punches!

10.02.2000

39

Fill cam

The size of the filling cams mounted in the machine is entered here.

The filling curves are rated in graduations of 2 mm. The filling curves are marked with the maximum possible filling in mm. Each fill cam covers a range of 5.5 mm.

The input range is reduced by 0.5 mm on both sides.

Example: 10 mm filling cam, input range from 5 to 9.5 mm

The specific use of the various filling cams depends on the product. For example, it depends on the granulate and the compaction ratio. Always select a filling cam which guarantees that you overdose by at least 1–2 mm.

If the adjustment control takes the machine out of the permissible range, then the machine is stopped with a corresponding diagnosis.

10.02.2000

41 **Multi punch times**

If a multi punch is being used, parameter “41” indicates the number of insert punches per punch.

This number is used for example to calculate the number of tablets per hour, the good tablets, bad tablets, filling quantity and permissible punch load.

10.02.2000

42 **Upper punch length mm**

This parameter is only required for special punch lengths.

When “0” is entered here, the standard punch length is used.

On the basis of this entry, the computer automatically corrects the settings for filling depth, web height and penetration depth.

10.02.2000

43 **Lower punch length mm**

This parameter is only required for special punch lengths.

When “0” is entered here, the standard punch length is used.

On the basis of this entry, the computer automatically corrects the settings for filling depth, web height and penetration depth.

10.02.2000

44 **Special cyl. height**

This entry can be used to reduce the minimum limit for web (cylindrical) height from 0.5 mm (“parameter 18/19”) to 0.1.

The form of the tablet must be taken into consideration here, protruding broken notches are not included in the punch length.

10.02.2000

45 **Punch stiffness top Nm**

Punch stiffness at the top in Newton Meter

The limit for permissible punch stiffness of the upper punch is entered here in Newton Meter.

The value entered here is to be defined when the machine is operating with the product. An indicative value can be taken to be set value = actual value x 1.3.

If the stiffness of the upper punch exceeds 75% of the set value, then a warning diagnosis is produced.

When the set value is reached, the machine is stopped with a corresponding diagnosis.

10.02.2000

46 **Punch stiffness bott. N**

Punch stiffness bottom in Newton

The limit for the permissible punch stiffness for the lower punch is entered here in Newton.

The value entered here is to be defined when the machine is operating with the product. An indicative value can be taken to be set value = actual value x 1.3.

If the stiffness of the upper punch exceeds 75% of the set value, then a warning diagnosis is produced.

When the set value is reached, the machine is stopped with a corresponding diagnosis.

10.02.2000

47 **Lubri. cycle 1 s**

The interval between the lubrication pulses is entered here.

The quantity of oil supplied with every lubricating pulse is defined by the size of the dosing element.

If no value is entered for the lubricating cycle time, then the value of this parameter is automatically set to 50 seconds.

Note:

For one–circuit lubrication, this time applies to the upper and lower punch.

For two–circuit lubrication, this time applies only to the lower punch.

10.02.2000

48 **Lubri. cycle 2 upper s**

Lubrication cycle 2 upper punch

If this parameter is enabled, then the interval for upper punch lubrication is entered here.

Parameter 47 then only refers to lower punch lubrication.

The oil quantity supplied for each lubricating pulse is defined by the size of the dosing elements.

If no value is entered for the lubricating cycle time, then the value of this parameter is automatically set to 50 seconds.

10.02.2000

49 **Extraction vacuum hPa**

Extraction vacuum in hecto Pascal (1 hPa ~ 1mbar)

Pressure transducers and a corresponding control device control the extraction vacuum.

If the actual value deviates by more than 0.5 hPa from the set value within one minute, then the machine is stopped with a corresponding diagnosis.

10.02.2000

50 **Main motor curr. max A**

Main motor maximum current maximum in amps

Power consumption of the main motor is monitored by the frequency converter.

In this parameter the power consumption can be limited for added safety.

If the motor current exceeds the entered value, then the machine switches off with “diagnosis 4503”.

This control is deactivated for 3 seconds when the machine starts up or when the speed is changed.

The parameter is deactivated in the setting run.

10.02.2000

51 **FOM motor curr. max A**

Fill–o–matic motor current maximum in amps

The power consumption is monitored by the frequency converter of the Fill–o–matic motor.

If the motor current exceeds the entered value, then the machine switches off with “Diagnose 4110 or 4111”.

This control is deactivated for 3 seconds when the machine starts up or when the speed is changed.

The parameter is deactivated in the setting run.

10.02.2000

52 **Permitted bad tablets**

Permitted number of bad tablets

After entering “parameter 52”, the number of bad tablets can be pre–selected which is permissible for the pre–selected number of tablets “parameter 54”.

Example:

If 4 bad tablets are permitted for every 100 produced tablets, then the number 4 is entered for “parameter 52” and the number 100 for “parameter 54”. If 4 tablets of every 100 pressed tablets are outside the limits (top and bottom individual values), then the machine is stopped with a corresponding diagnosis.

The parameter is deactivated in the setting run.

In the standard run, the rejected tablets are not counted until 10 seconds after motor ON.

10.02.2000

53 **Same punch bad**

Same punch bad

“Parameter 53” can be used to stipulate the maximum permitted number of bad tablets of a punch pair allowed for the number of tablets in “parameter 54”.

Example:

If 2 bad tablets are permitted for 200 produced tablets in the same punch, then the number 2 is entered for “parameter 53” and the number 200 for “parameter 54”.

If more than 2 tablets for every 200 pressed tablets are outside the limits (top and bottom individual value limits), then the machine is stopped with a corresponding diagnosis and display of the punch number.

The parameter is deactivated in the setting run.

In the standard run, the rejected tablets are not counted until 10 seconds after motor ON.

10.02.2000

54 **Per no. of tablets**

“Parameter 54” is the reference number for “parameter 52 and 53”.

When “0” is entered here, “parameter 52, 53 and 54 are deactivated.

10.02.2000

55 **Permitt. metal pulses**

Permitted metal pulses

After entering parameter “55” the number of rejection pulses of a metal detector can be selected which are permitted for the number of tablets stated in “parameter 56”.

Example:

If 2 rejection pulses are permitted for 10 x 1000 = 10,000 produced tablets, then the number 2 is entered for “parameter 55” and the number 10 for “parameter 56”.

If there are more than 2 rejection pulses for every 10,000 pressed tablets, then the machine is stopped with a corresponding diagnosis.

When “0” is entered here, “parameter 55 and 56” are deactivated.

10.02.2000

56 **Per no. of tabl. x1000**

Per number of tablets times 1000

“Parameter 56 is the reference number for “parameter 55”.

When “0” is entered here, then “parameter 55 and 56” are deactivated.

10.02.2000

57 **Statistic no. of tabl.**

Number of tablets for the statistics

The number of tablets for the statistics must be entered here.

This number indicates how many tablets are taken to calculate the mean value and the relative standard deviation for the pressing force.

Each time, two mean values and one relative standard deviation value are calculated.

The first mean value is calculated with the rejected tablets and is used to define the necessary adjustment.

The second mean value is calculated without the rejected tablets and shown on the screen.

Note:

In order to keep the punch length influences as constant as possible for the statistics, it is advisable to select a number of tablets for the statistics which corresponds to the punch number of the rotor, or a multiple thereof.

10.02.2000

58 **Press. force mov. av. no**

The moving average or coefficient for the pressing force can be entered here.

This number defines after how many new tablets the next mean value is calculated.

Example 1 :

“Parameter 57” No. of tablets for statistics = 100
“Parameter 58” Pressing force coefficient = 0

In this example, a new mean value is calculated after 100 tablets.

Example 2 :

“Parameter 57” No. of tablets for statistics = 100
“Parameter 58” Pressing force coefficient = 25

In this example, the mean value is calculated for the first time after starting the machine after 100 tablets.

The next mean value is then calculated after 25 tablets, consisting of 75 old and 25 new tablets.

This coefficient means that the mean value calculation can be shortened without the statistics becoming inaccurate from reduced quantities.

10.02.2000

59 **Filling depth regulat. no.**

The filling depth regulating or control number is entered here.

This control number indicates after how many tablets the set pressing force should be compared with the current actual mean pressing force value.

If this comparison reveals a difference between set and actual value, then the system is adjusted accordingly.

The filling depth control number should not be smaller than the no. of tablets for statistics or pressing force coefficient, as otherwise the system would repeatedly adjust to a mean value.

Example 1 :

“Parameter 57” No. of tablets for statistics = 100
“Parameter 58” Pressing force coefficient = 50
“Parameter 59” Filling depth control number = 25

In this case, the system adjusts to a mean value twice, as a new value is only calculated every 50 tablets.

Effect:

The control starts to oscillate, which has a negative effect on the standard deviation. (see “parameter 8”)

Example 2 :

“Parameter 57” No. of tablets for statistics = 100
“Parameter 58” Pressing force coefficient = 50
“Parameter 59” Filling depth control number = 100

in this case, the system adjusts after every second mean value.

Effect:

The readjustments are not too frequent, which has a positive effect on the standard deviation. (Observe “parameter 8”)

10.02.2000

60 **Pre compr. f. MV max %**

Pre–compression force mean value maximum as a percentage

The maximum permissible deviation of the set pressing force from “parameter 13” is entered here.

Example:

“Parameter 5” = 10 kN set value
“Parameter 7” = 25 %

The machine is stopped with a corresponding diagnosis when the actual value in “parameter 13” is greater than 12.5 kN or smaller than 7.5 kN.

The value which has stopped the machine is shown in the actual field of “parameter 13”.

10.02.2000

61 **Pre compr. f. top max %**

Pre–compression force upper limit maximum as a percentage

This parameter defines the upper individual value limit for pre–pressure

Pre–compression measurement without punch saving.

If the individual upper value limit is exceeded, then the machine is stopped with a corresponding diagnosis.

Only active with option: SH 2

Pre–compression measurement with punch saving

When the individual upper value limit is exceeded, firstly the machine is stopped with a corresponding diagnosis.

Then the web or cylindrical height of the main compression station is moved apart by 1 mm. At the same time, the web height of the pre–pressure moves apart by 0.05 mm.

The rotor then moves on 12 stations while the reject gate is in the bad position.

The machine then stops again and the web height of the main compression is set back to the value stated for “parameter 64” starting relief.

Once this value has been adjusted, the machine starts up again and after a further 15 stations the reject gate also works normally again. After 20 stations, the web heights of both pre–compression and main–compression are returned to the original set values. Production then continues as before the fault, and the display of the corresponding diagnosis goes off again.

Only active with option: SH 2 and S 43.

10.02.2000

62 **Pre compr. f. bot. max %**

Pre–compression force bottom limit maximum as a percentage

If the value falls below the bottom individual value limit, then the machine is stopped with a corresponding diagnosis.

10.02.2000

64 **Start relief mm**

The value by which the main pressure rollers should move apart when the machine stops to protect the punches during the start phase is entered here.

After the start, the original value is approached again, starting with the 21st tablet. Then the discharge gate is switched to good position.

This parameter has been introduced to keep the punch load in the tolerable range in spite of overfilling when the machine starts up.

Remarks:

This parameter should only be used for delicate punches when the above problem cannot be solved in any other way, since when this parameter is activated, some additional tablets are automatically rejected at every start, because the discharge gate is in the bad position after the start.

Only active with option :S 26

10.02.2000

65 **Punch check %**

A maximum permissible deviation from the average pressing force of a pair of punches can be defined in “parameter 65”

The average pressing force is the mean value taken from 10 pressing forces of a pair of punches. The first of these mean values counts as being characteristic.

The pressing forces are measured starting with the 2nd revolution after main switch “ON” and the first start of the machine.

If later during operation continuously formed pressing force mean values deviate by a greater percentage that that stated from the characteristic value, then the machine is stopped with diagnosis 5161.

Only active with option: S 31

10.02.2000

8.3. Parameter list “D” (66 to 99)

66 **No. of punches rotor**

No. of punches of the rotor

The complete number of punches of the rotor must be entered here.

10.02.2000

68 **Discharge gate delay. s**

Discharge gate (slow gate) delay in seconds

After starting the machine, it can be necessary to leave the discharge gate in the bad position for a while.

This time can be pre–selected in seconds.

When “0” is entered, the discharge gate remains in the bad position for only 15 tablets after machine “ON”.

10.02.2000

69 **Fill–o–matic pre–run s**

A pre–run time for the die Fill–o–matic can be entered here.

The pre–run can be necessary to optimise material flow in the Fill–o–matic.

The rotor does not start to turn until the end of this Fill–o–matic pre–run time.

10.02.2000

70 **Fill–o–matic post–run s**

If parameter no. “70” is entered, then a post–run time for the Fill–o–matic can be pre–selected in the entry field.

The post–run can be necessary to optimise material flow in the Fill–o–matic.

10.02.2000

72 **Drum set quantity**

The number of drums or barrels to be filled until the machine stops is entered here, including the barrel currently being filled.

The entered number appears in the set field.

The filled barrels are shown in the actual field.

When the number of filled barrels (actual field) reaches the set value default, then the machine stops with the corresponding diagnosis.

Only active with option: P 6 “Loading Center”

10.02.2000

73 **Total drums/curr.**

The actual field of this parameter shows the total number of drums which are filled after entering a new batch.

The number in the actual field is reset to “0” when a new charge has been entered.

Only active with option: P6 “Loading Center”

10.02.2000

74 **Sampling x1000**

A sample is taken every time the pre–selected number of tablets is reached.

The first time 30 seconds after the first start of a new batch, and then every “n” x1000 tablets.

If the machine is stopped at the point in time of sampling, then the sample is delayed by 30 seconds after the new start.

When “0” is entered, no sample is taken.

If no tablet is taken as sample after 5 sampling procedures in succession, then the machine is stopped with a corresponding diagnosis.

Only active with option: P12 “Checkmaster”

10.02.2000

79 **Memory cycle x1000**

The memory cycle for the production report is entered here.

The registered values are saved for the first time after production begins and then every time after reaching the pre – selected memory cycle.

When “0” is entered, the values are not saved.

Only active with option: S 12

10.02.2000

81 **Adjustment delay s**

An adjustment in delay can be entered in seconds here.

In this case, every time after the machine starts, the filling adjustment starts after the stated adjustment delay time.

10.02.2000

82 **Sep. sampling gate s**

Separate sampling gate

This parameter can be used to trigger a separate gate for sampling

Only active with option: SH 10

10.02.2000

83 **Reject delay**

When a value is entered here, it is possible to delay the triggering point of the reject gate.

Angle adjustment for reject using the reject gate:

Entry	Adjustment angle	
0.0	±0.0˚	Adjustment not active
0.1	–4.9˚	
0.2	–4.8˚	
0.3	–4.7˚	Negative angles result in an earlier reject point in time
...	...	
4.7	–0.3˚	
4.8	–0.2˚	
4.9	–0.1˚	
5.0	±0.0˚	Adjustment not active
5.1	+0.1˚	
5.2	+0.2˚	
5.3	+0.3˚	Positive angles result in a later reject point in time
...	...	
9.7	+4.7˚	
9.8	+4.8˚	
9.9	+4.9˚	

10.02.2000

85 **Fill–o–matic on = 1**

Only active in the test run and closed windows !!!

Here the Fill–o–matic can be switched on independently of the machine (e.g. for emptying).

“0” = OFF
“1” = ON

10.02.2000

88 **Freak value test on=1**

If a “1” is entered, then the “freak value test” is switched on.

This freak value test is only used for evaluation of tablet weights.

Only active with option: S 21 (not implemented yet)

10.02.2000

89 **Running time meter h**

The running time or operating hours counter counts the operating hours of the machine.

The time corresponds to the actual turning time of the rotor.

10.02.2000

92 **Eject force max N**

Tablet eject force in Newton

After entering “parameter 92”, the maximum permissible ejection force can be entered here.

The maximum ejection force is registered within a set measuring time and displayed in the actual field.

If the actual value reaches 75% of the set value, then a warning diagnosis with corresponding text appears for approx. 10 seconds.

When the value exceeds the set value, the machine is stopped with a diagnosis.

The ejection force causing the machine to stop is displayed in the actual field.

When “0” is entered, the actual field shows the ejection force but the machine is not stopped.

Only valid with option : SH 22

10.02.2000

94 **Spray valve no. active**

The no. of the valves to be activated when there is a spray lubricating device is entered in parameter no. “94”.

Each of the valves can be triggered individually. The following combinations are possible:

set value	Valve 1	Valve 2
0	OFF	OFF
1	ON	OFF
2	OFF	ON
3	ON	ON

When “0” is entered, the spray lubrication device is deactivated. The “parameters 94/95/96” are not effective.

Only active for option SH 32

10.02.2000

95 **Spraying on rounds.**

Spraying on in number of rounds

“Parameter 95” states the duration of lubrication by a spray lubrication device in rotor revolutions.

During this time, the spray valves designated as active by “parameter 94” are opened. The connected spray nozzles coat the punch with lubricant or separating agent.

When “0” is entered, the spray lubrication device is deactivated. Parameters “94/95/96” are ineffective.

Only active for option SH 32

10.02.2000

96 **Spraying off rounds**

Spraying off in number of rounds

“Parameter 96” states the duration of the interval between two lubrications by a spray lubrication device in rotor revolutions.

During this time, the spray valves designated as active by “parameter 94 are closed.

When “0” is entered, the spray lubrication device is always switched on, i.e. there is no interval.

Only active for option: SH 32

10.02.2000

97 **Temp drift. cyl.ht. mm**

Temperature drift in the cylindrical or web height in mm

Maximum web height offset when fully heated.

The value by which the web height drives have to move to compensate for thermal expansion in the pressure rolls and punches can be entered in the set field. This end offset value is approached exponentially to the operating time of the machine. The current offset is shown in the set field.

The web height adjustment is also taken into consideration in the actual field of “parameter 18”.

Only valid with option : S54

10.02.2000

98 **Factor adjustm. step**

This parameter is used to adjust the adjustment step side for weight control.

Adjustments are only made for weight deviations greater than 1%.

There are two adjustment procedures for weight control.

If a value for adjustment thickness is entered in “parameter 31”, in the first hour of production the tablet weight is corrected with the proportional adjustment.

After this the weight is corrected with constant adjustment steps. This control method is advantageous in the start–up phase with extreme fluctuations in weight.

If no value is entered for parameter 31, then the adjustment consists only of constant adjustment steps.

The constant adjustment steps depend on the tablet set web height and are calculated as follows:

Web height	Adjustment step
0.00 – 0.99 mm	0.01 mm
1.00 – 1.99 mm	0.02 mm
2.00 – 2.99 mm	0.03 mm
3.00 – 3.99 mm	0.04 mm
...	...
8.00 – 8.99 mm	0.09 mm

but maximum 0.10 mm

The adjustment step size can be changed with this correction factor.

The completed adjustment step results from the multiplication of “parameter 98” with the normal adjustment step as described above.

Example:

If “parameter 98” equals 2 and the set web height equals 2.5 mm, this results in an adjustment step of 0.06 mm.

Only valid for option: P12 + S19b

10.02.2000

8.4. Parameter list “E” (100 to 133)

100 **No. samples / bottle**

No. of samples per bottle

The number of samples to be collected in every sample bottle is entered here.

When a new batch number is entered, the actual value is set to“0” and the system moves on to sample bottle “1”.

Only active with option: P12 “Checkmaster”

10.02.2000

101 **No. tablets weight**

The number of tablets for evaluating the weight is stated here.

Only active with option: P12 “Checkmaster”

10.02.2000

102 **Window weight + %**

The upper limit for the permissible range (window) for tablet weight can be entered here.

Example:

If a value of “+30%” is entered, this means that only tablets up to “130%” of the set weight are evaluated.

Only active with option: P12 “Checkmaster”

10.02.2000

103 **Window weight – %**

The lower limit of the permissible range (window) for tablet weight can be entered here.

Example:

If a value of “–30%” is entered, this means that only tablets greater than “70%” of the set value are evaluated.

Only active with option: P12 “Checkmaster”

104 **Tablet weight +t2 %**

The “+T2” limit for tablet weight is entered here.

If the limit is exceeded, the machine stops at the end of a sample when an individual value lies outside this limit.

Tablets outside the “T2” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

105 **Tablet weight +t1 %**

The “+T1” limit for tablet weight is entered here.

Tablets outside the “T1” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

106 **Tablet weight –t1 %**

The “–T1” limit for tablet weight is entered here.

Tablets outside the “T1” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

107 **Tablet weight –t2 %**

The “–T2” limit for tablet weight is entered here.

If the limit is exceeded, the machine stops at the end of a sample when an individual value lies outside this limit.

Tablets outside the “T2” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

108 **No. tablets thickness**

The number of tablets for evaluating the thickness is entered here.

Only active with option: P12 “Checkmaster”

10.02.2000

109 **Window thickness + %**

The upper limit of the permissible range (window) for tablet thickness can be entered here.

Example:

If a value of “+30%” is entered, this means that only tablets up to “130%” of the set thickness are evaluated.

Only active with option : P12 “Checkmaster”

10.02.2000

110 **Window thickness – %**

The lower limit of the permissible range (window) for tablet thickness can be entered here.

Example:

If a value of “–30%” is entered, this means that only tablets greater than “70%” of the set value are evaluated.

Only active with option: P12 “Checkmaster”

10.02.2000

111 **Tablet thickness +t2 %**

The “+T2” limit for tablet thickness is entered here.

If the limit is exceeded, the machine stops at the end of a sample when an individual value is outside this limit.

Tablets outside the “T2 “ limit are entered in the window report.

Only active with option: P12 “Checkmaster”

10.02.2000

112 **Tablet thickness +t1 %**

The “+T1” limit for tablet thickness is entered here.

Tablets outside the T1 limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

113 **Tablet thickness –t1 %**

The “–T1” limit for tablet thickness is entered here.

Tablets outside the “T1” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

114 **Tablet thickness –t2 %**

The “–T2” limit for tablet thickness is entered here.

If the limit is exceeded, the machine stops at the end of a sample when an individual value is outside this limit.

Tablets outside the “T2” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

117 **No. tablets hardness**

The number of tablets for evaluating hardness is entered here.

Only active with option: P12 “Checkmaster”

10.02.2000

118 **Window hardness + %**

The upper limit for the permissible range (window) for tablet hardness can be entered here.

Example:

If a value of "+30%" is entered, this means that only tablets up to "130%" of the set hardness are evaluated.

Only active with option: P12 "Checkmaster"

10.02.2000

119 **Window hardness – %**

The lower limit of the permissible range (window) for tablet hardness can be entered here.

Example:

If a value of "–30%" is entered, this means that only tablets greater than "70%" of the set hardness are evaluated.

Only active with option: P12 "Checkmaster"

10.02.2000

120 **Tablet hardness +t2 %**

The "–T1" limit for tablet hardness is entered here.

If the limit is exceeded, the machine stops at the end of a sample when an individual value is outside this limit.

Tablets outside the "T2" limit are entered in the result report.

Only active with option: P12 "Checkmaster"

10.02.2000

121 **Tablet hardness +t1 %**

The "+T1" limit for tablet hardness is entered here.

Tablets outside the "T1" limit are entered in the result report.

Only active with option: P12 "Checkmaster"

10.02.2000

122 **Tablet hardness –t1 %**

The “–T1” limit for tablet hardness is entered here.

Tablets outside the “T1” limit are entered in the result report.

10.02.2000

123 **Tablet hardness –t2 %**

The “–T2” limit for tablet hardness is entered here.

If the limit is exceeded, the machine stops at the end of a sample when an individual value lies outside this limit.

Tablet outside the “T2” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

124 **Sampling gate open s**

The length of time in which the sampling gate is to take sample tablets must be entered here.

Only active with option: P12 “Checkmaster”

10.02.2000

125 **Chute rot. angle 1–9**

The rotation angle of the Checkmaster chute is entered here in stages from ”1 – 9”.

This value has to be optimised by trial and error depending on the size and form of the tablets.

Only active with option: P12 “Checkmaster”

10.02.2000

126 **Chute speed 1 – 9**

The rotation speed of the Checkmaster chute is entered here in stages from “1 – 9”.

This value has to be optimised by trial and error depending on the size and form of the tablets.

The smaller the rotation speed, the greater the vibration of the chute.

The vibration of the chute can be adjusted by the configuration of the Checkmaster.

Only active with option: P12 “Checkmaster”

10.02.2000

127 **Disk speed 1 – 9**

The rotation speed of the disk is entered here in stages from “1 – 9”.

This value has to be optimised by trial and error depending on the size and form of the tablets.

Only active with option: P12 “Checkmaster”

10.02.2000

8.5. Parameter list “F” (134 to 167)

150 **No. tablets diameter**

The number of tablets for evaluating the diameter is entered here.

Only active with option: P12 “Checkmaster”

10.02.2000

151 **Window diameter + %**

The upper limit of the permissible range (window) for tablet diameter can be entered here.

Example:

If a value of “+30%” is entered, this means that only tablets up to “130%” of the set diameter are evaluated.

Only active with option: P12 “Checkmaster”

10.02.2000

152 **Window diameter – %**

The lower limit of the permissible range (window) for tablet diameter can be entered here.

Example:

If a value of “–30%” is entered, this means that only tablets greater than “70%” of the set diameter are evaluated.

Only active with option: P12 “Checkmaster”

10.02.2000

153 **Diameter +t2 %**

The “+T2” limit for tablet diameter is entered here.

If the limit is exceeded, the machine stops after the end of a sample when an individual value liis outside this limit.

Tablets outside the “T2 ” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

154 **Diameter +t1 %**

The “+T1” limit for tablet diameter is entered here.

Tablets outside the “T1” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

155 **Diameter –t1 %**

The “–T1” limit for tablet diameter is entered here.

Tablets outside the “T1” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

156 **Diameter –t2 %**

The “–T2” limit for tablet diameter is entered here.

If the diameter falls below the limit, the machine stops at the end of a sample when an individual value lies outside this limit.

Tablets outside the “T2” limit are entered in the result report.

Only active with option: P12 “Checkmaster”

10.02.2000

161 **Press.force tolerance %**

162 **Adjustm. step per % mm**

These parameters refer to linear pressing force control

Linear pressing force control: This control does not depend on web height but on the relative pressing force deviation. The adjustment behaviour is defined by 2 parameters:

Parameter 161 : Press. force tol.[%]
Parameter 162 : Adjustm.step per % [mm]

Parameter 161 defines from which relative pressing force deviation the adjustment starts.

Parameter 162 defines the adjustment step size. Adjustment step [mm] = (deviation set/actual as a %) x par.162. If parameter 162 is set to zero, then the standard pressing force control is active again (adjustment step dependent on web height).

Parameter 161 is stated as a percentage and para. 162 in mm.

Example :

set pressing force	:	24.0 kN
Actual pressing force	:	23.5 kN
Parameter 33	:	1
Parameter 161	:	1.5 %
Parameter 162	:	0.01mm
Rel. deviation	:	100/24 x (23.5−24) = −2.08%
Adjustment step	=	2.08 * 0.01mm => 0.02mm

If the calculated adjustment step is greater than 0.1mm, then it is limited to 0.1 mm (attenuation measure for large changes in pressing force, e.g. by changes in web height).

The adjustment is only active when parameter 33 has been set.

Standard pressing force control:
under 1% pressing force deviation – no adjustment step
from 1−3% pressing force deviation – single adjustment step
over 3% pressing force deviation – double adjustment step

The adjustment step is calculated as follows:
Adjustment step : web height [mm] / 100 + 1;
Limit : max. adjustment step = 0.1 mm

This adjustment results in excessive pressing force fluctuation in the case of large web heights and large punch surfaces.

Since the adjustment step is calculated from the web height, large adjustment steps are produced even when the pressing force deviation is only slight.

Only valid with option : S23a

10.02.2000

163 **Gratex post–run s**

When a value is entered here, the Gratex or vertical deduster runs on for this length of time.

When “0” is entered, the following post–run time applies:

Gratex:

20 x 60 / actual value “Parameter 34”

Vertical deduster:

20 x 60 / 11 x actual value “Parameter 34”

10.02.2000

164 **Nozzle cycle s**

A period is entered after which test reject is activated. If no tablet is rejected within this period of time, then one tablet is rejected to blow the nozzle hole free.

The diagnosis 5016/5017– punch–relevant reject – then appears. This test reject is thus also entered in the diagnosis report and the bad tablet counter increased.

Only valid with option S662

10.02.2000

8.6. Parameter list “G” (168 to 201)

170 **Rej. gate control off**

Reject gate control off

The control for the reject gate (fast gate) is switched off by this parameter.

Entry:

“0” = reject gate control active
“1” = reject gate control deactivated

10.02.2000

171 **Ramp ex. speed contr. s**

Ramp time external speed control in seconds

External control:
Speed control with fixed step width (5%)
Only valid with option : SH37

If a change in speed is dictated by the external control of the packaging line, then the speed of the machine is increased or decreased by 5% of the stated time.

External control:
Speed control with variable step width
Only valid with option : SH38

The speed is changed by the percentage stated in “parameter 172” within the time set in “parameter 171”

Example:

“Parameter 171” = 5s
“Parameter 172” = 5%

If a change in speed is dictated by the external control of the packaging line, then the speed is increased or decreased by 5% in 5 seconds.

10.02.2000

172 **Range ex. speed contr. %**

Range external speed control as a percentage

If a change in speed is dictated by the external control of the packaging line, then the speed of the machine is increased or decreased by the percentage entered here.

10.02.2000

173 **Remote contr. ON/OFF**

External control ON/OFF

The external control is switched on and off by the packaging line using this parameter.

Entry:

“0” = Remote control OFF
“1” = Remote control ON

Once the remote control has been switched on, the machine can be controlled by the external control of the packaging line.

10.02.2000

174 **Discharge gate Reject**

Reject with discharge gate (Slow gate)

With this parameter you set the reject mode.

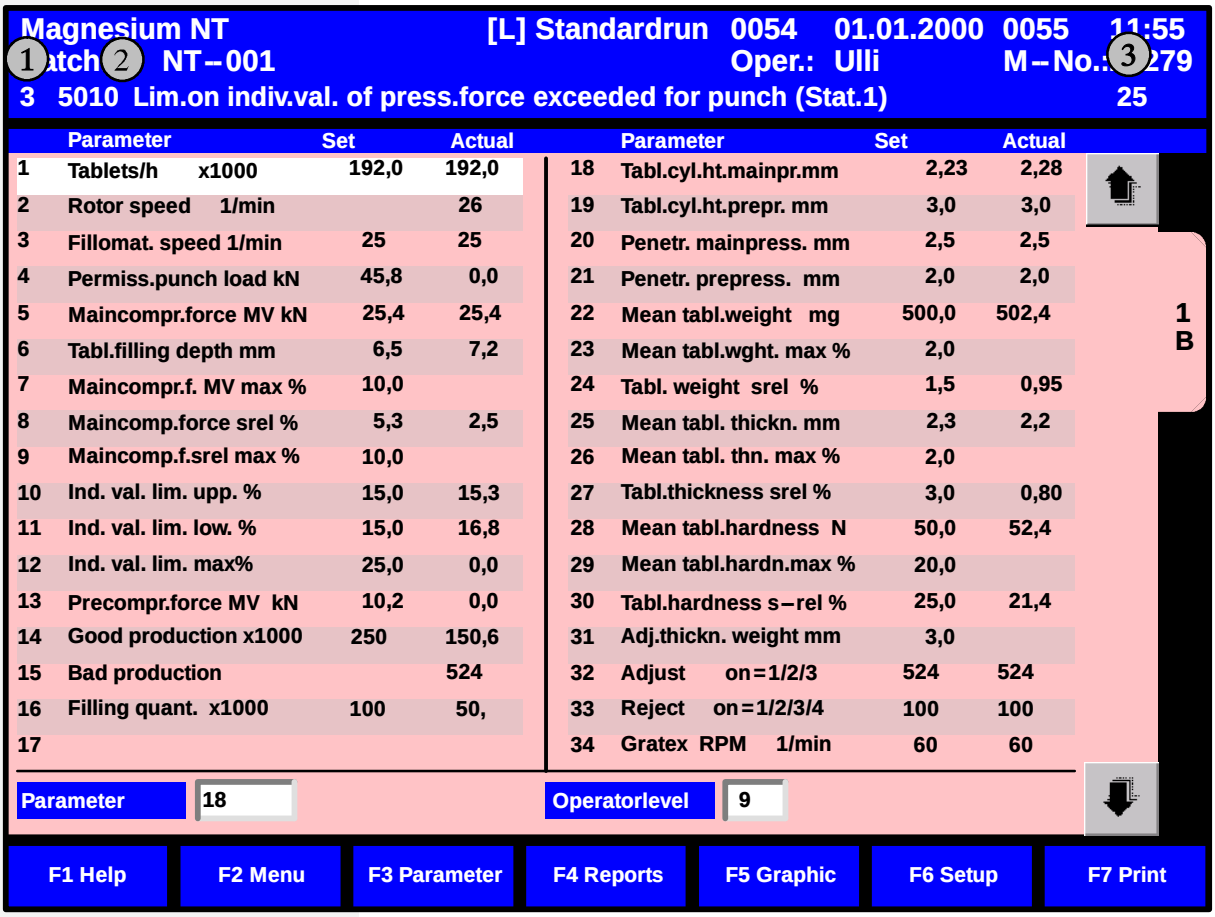
Parameter = 0 Reject with reject gate (Fast gate)
(if discharge gate is available)

Parameter > 0 Reject with discharge gate (slow gate)
The set value is the number of tablets witch will be rejected during a reject cycle.

01.03.2000

9. Diagnosis

9.1. General information



1 In the head field there is a diagnosis line stating the number of the current diagnosis.

2 The last diagnosis (number and text)

3 Together with any index number belonging to the displayed diagnosis

9.2. Input limits : diagnoses 0001....0999

0007 **Hand input parameter ”38” = select 9**
(Diagnosis display = no special lamp signal) (D)

Normally the permissible punch load is automatically shown in parameter no. ”4” when the tablet dimensions and forms are entered in parameters ”35” and ”38” respectively ”36/37” and ”38”. Direct manual input for parameter ”4” is not possible.

If nevertheless an attempt is made to enter a value manually in parameter ”4” without parameter ”38” containing a ”9”, then the above diagnosis appears until the next list change.

28.03.95

0008 **Input block is activated**
(Diagnosis display = no special lamp signal)

The following inputs are blocked:
- Machine start
- F10 Fill–o–Matic inching mode
- F11 Rotor inching mode
- F12 Punch to punch

This diagnosis remains active until the input block is cancelled.

31.01.00

9.3. Control terminal (IC) Diagnoses 1000...1999

1004 **Missing parameter or text no. in configuration file (Diagnosis display = no special lamp signal)**

Wrong file on data carrier or file defect.

Repeat installation of configuration disk.

28.03.95

1005 **Illegal parameter or text no. in configuration file (Diagnosis display = no special lamp signal)**

Wrong file on data carrier or file defect.

Repeat installation of configuration disk.

28.03.95

1006 **API fault: (Diagnosis display = no special lamp signal) (D)**

A fault was found on using the API (Application Programming Interface).

Please look in the original manuals of the IC for the meaning of this fault.

If you need to call Fette for this problem, please also state the displayed system diagnosis number.

28.03.95

1010 **Printer not switched on (Diagnosis display = no special lamp signal)**

Printer does not accept any data.

Switch printer on, check printer cable and connections, check paper and paper guide.

16.11.99

1012 **Communication to press: wrong data**
(Diagnosis display = no special lamp signal) (D)

Wrong, unknown or not enough data came from the press.

The unknown data set is ignored.

28.03.95

1013 **Printer busy**
(Diagnosis display = no special lamp signal) (D)

The printer is busy on request.

The message will be deleted as soon as the printer has finished.

28.03.95

1014 **Disk fault**
(Diagnosis display = no special lamp signal) (D)

A fault occurred on saving on a disk or loading from a disk. The fault index number states the type of fault:

Not Ready: No disk in drive

Write Protect: Write protect tab on disk open

Please also look in the original manuals of the

IC for the meaning of this fault.

Cancel the fault by trying again.

16.11.99

1015 **Link IC < – > press interrupted:**
(Diagnosis display = no special lamp signal)

The link between IC and press has been interrupted.

Possible causes

– defect mains cable
– VME computer not working

The system now automatically tries to restore the link.

16.11.99

1016 **Checkmaster transfer fault :**
(Diagnosis display = no special lamp signal) (D)

Transfer report fault

Faults occurred on transferring data from the IC to the Checkmaster computer.

The diagnosis is supplemented by a system diagnosis number as follows:

Index	:	Meaning
1002	:	DINALOGRECEIVE not accepted (Reception on IC cannot be enabled)
1003	:	DINALOGTRANSMIT not accepted (Transfer to IC cannot be enabled)
1005	:	DINALOGFIRST RECEIVE not accepted (IC could not be made ready to accept transfer)
1007	:	DINALOGRemote Transmitter aborted (Checkmaster has aborted data transfer to IC)
1008	:	DINALOGRemote Receiver aborted (Checkmaster does not accept data from IC)
1009	:	DINALOG – Own Transmitter aborted (Checkmaster does not answer)

If the fault does not occur in following transfers, the diagnosis is cancelled.

28.03.95

1018 **Transfer fault Leanmaster (LM):**
(Diagnosis display = no special lamp signal) (D)

Transfer report fault

Faults occurred on transferring data from IC to Leanmaster computer.

The diagnosis is supplemented by a system diagnosis number as follows:

Index	:	Meaning
1002	:	DINALOGRECEIVE not accepted (Reception on IC cannot be enabled)
1003	:	DINALOGTRANSMIT not accepted Transfer to IC cannot be enabled)
1005	:	DINALOGFIRST RECEIVE not accepted (It was not possible to make IC ready to receive)
1007	:	DINALOGRemote Transmitter aborted (Leanmaster has aborted data transfer to IC)
1008	:	DINALOGRemote Receiver aborted (Leanmaster does not accept data from IC)
1009	:	DINALOG – Own Transmitter aborted (Leanmaster does not answer)

If the fault no longer occurs during following transfers,
then the diagnosis is cancelled.

28.03.95

9.4. Machine computer : Diagnoses 2000...2999

1235 **LM computer had RESET**
(Diagnosis display = no special lamp signal)

When the LM computer comes out of the reset, it reports this to the IC, which sets the diagnosis. The product data are transferred again.

If no other diagnoses occur (communication fault...)then the system can be restarted, otherwise we recommended main switch on/off.

The diagnosis goes off the next time the machine starts.

16.11.99

2003 **Fault in data set of configuration data**
(Stop diagnosis = red lamps on permanently)

The configuration data are faulty. The tablet press cannot be operated with these data !!. The additional information indicates the fault.

Index : Fault
- 1 Configuration data from IC do not fit.
  Cause: software versions control computer and VME system are not compatible.
- 2 : Only WIP machines : fault in washing program
- 3 : Faulty synchronisation of reject and discharge gate

The diagnosis goes off when the fault is rectified in the configuration data.

16.11.99

2010 **Positioning control memory must be deleted (Stop diagnosis: red lamps permanently on) (A).**

If the control parameters of the positioning control deviate from the prescribed values, or if there is a check sum fault in the data set of the positioning control, then the positioning control memory has to be deleted.

To do so, use menu ”F6 SET UP/DELETE MEMORY”

While the memory is being deleted, diagnosis ”2011 memory being deleted” is shown.

After this, the reference marks have to be approached and a zero balance carried out.

16.11.99

2011 **Positioning control memory is being deleted (Diagnosis display = no special lamp signal)**

The static RAM memory on the positioning control is being deleted and re–initialised.

The diagnosis goes off at the end of the procedure.

16.11.99

2012 **Software fault on the positioning control**

(Diagnosis display = no special lamp signal)

After switching on (power_up, reset or abort) a fault was found on forming the check sum of the data set.

In order to eliminate this fault, the positioning control memory has to be deleted. To do so, use the menu ”F6 SET UP/DELETE MEMORY”.

While the memory is being deleted, diagnosis ”2011 memory being deleted” is shown.

After this, the reference marks have to be approached and a zero balance carried out.

15.11.99

2014 **Reset cause machine computer (Diagnosis display = no special lamp signal)**

After connecting to the machine computer, the machine computer reports its reset cause.

The reset cause thus shows the reason for shutting down the VME system last time.

If the machine is switched on with the main switch, this diagnosis does not appear while the machine is running up.

Index	:	Meaning
1	:	VME powerfail line triggered
2	:	Communication interruption (TCP/IP Ethernet) Control computer has closed its network link or the control computer blocks the software handshake or the mains cable is defect.
3	:	Process an VME CPU interrupted
5	:	The IC requests a reset
6	:	VME Reset line has been activated
8	:	PTIDAC can no longer process encoder signal
10	:	Watchdog on VME CPU triggers VME reset
11	:	VME system internal reset request
12	:	Process on IPOS_1 interrupted
13	:	Process on IPOS_2 interrupted
14	:	Process on IPOS_3 interrupted

16.11.99

2020 **Check DC/DC converters on VME IPOS card (Stop diagnosis)**

The DC/DC converters of the VME IPOS cards are checked on booting and zero balance. If the DC/DC converter is not working properly, then this diagnosis appears. The drives cannot be moved. The VME IPOS card has to be replaced.

The index number shows which VME IPOS card has reported this fault:

Index	:	Meaning
1	:	IPOS station 1
2	:	IPOS station 2
3	:	IPOS station 3

16.11.99

2022 **Hardware fault machine computer (Stop diagnosis)**

A hardware fault has been detected on booting the machine computer (VME system). This means that the machine computer cannot run. The fault is coded in the index number :

Index	Fault	(Machine type:)
1	PTCAN defect	(with CAN BUS)
1	1st digital I/O defect	(without CAN BUS)
2	2nd digital I/O defect	(without CAN BUS)
3	3rd digital I/O defect	(without CAN BUS)
4	4th digital I/O defect	(without CAN–BUS)
5	5th digital I/O defect	(without CAN BUS)
6	1st PTIDAC defect	
7	2nd PTIDAC defect	
8	3rd PTIDAC defect	
9	1st positioning controller defect	
10	2nd positioning controller defect	
11	3rd positioning controller defect	
20	fork error on CPU	
21	CPU incorrectly jumpered	
22	OS9 internal fault	
23	OS9 internal fault	

16.11.99

2100 **Machine start (Diagnosis display = no special lamp signal)**

Entry in diagnosis report for data–record purposes. Diagnosis is set and cancelled again immediately.

16.11.99

9.5. Elektric : diagnoses 3000...3999

3000 **Check main contactor**
(Stop diagnosis = red lamps permanently on)

Check computer input diode no. After switching main switch to position ”on”, the main contactor should also switch.

If the main contactor does not switch in this case (with window flap fuse bridged), then the press should not be started and the above diagnosis appears on the screen.

The diagnosis goes off when the main contactor switches again.

16.11.99

3001 **Balance less than 0 mV amplifier A 600**
(lower main pressure)

(Warning diagnosis = green lamps flashing) (B)

Every measuring chain is roughly balanced manually on assembling the machine.

The manual balance is carried out in the sensitive measuring range. For this purpose, adjust the sensitive range in the test run (set parameter 5 to 5kN).

During the balancing procedure, the output signal of the amplifier must be set to approx. 150 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance ”W” in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer first switches the amplifier to the sensitive range for 2 seconds and measures the produced voltage. Then the amplifier is switched to the insensitive range for 2 seconds and the produced voltage is measured again.

The two measured zero balance voltages are defined as pressing force of 0 kN. Later measurements are referred to this zero point by subtracting the zero balance voltages from the voltages which are then measured.

If the measured zero balance voltage in one of the measuring ranges is smaller than or equal to 0 mV, then this diagnosis appears.

This diagnosis also appears after deleting the memory as reminder that the zero balance ”W” has to follow this.

The diagnosis goes off again when the zero balance voltage is greater than 0 mV after repeated manual balance and subsequent computer zero balance.

16.11.99

3002 **Balance greater than 300 mV amplifier A 600 (lower main pressure)**

(Warning diagnosis = green lamps flashing)

Every measuring chain is roughly balanced manually on assembling the machine.

The manual balance is carried out in the sensitive measuring range. For this purpose, adjust the sensitive range in the test run (set parameter 5 to 5kN).

During the balancing procedure, the output signal of the amplifier must be set to approx. 150 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance ”W” in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer first switches the amplifier to the sensitive range for 2 seconds and measures the produced voltage. Then the amplifier is switched to the insensitive range for 2 seconds and the produced voltage is measured again.

The two measured zero balance voltages are defined as pressing force of 0 kN. Later measurements are referred to this zero point by subtracting the zero balance voltages from the voltages which are then measured.

If the measured zero balance voltage is in a measuring range greater than 300 mV, then this diagnosis appears.

The diagnosis goes off again when the zero balance voltage is less than 300 mV after a repeated manual balance and subsequent computer zero balance.

16.11.99

3005 **Balance less than 0 mV amplifier A 602 (lower pre-pressure)**

(Warning diagnosis = green lamps flashing)

Every measuring chain is roughly balanced manually on assembling the machine.

The manual balance is carried out in the sensitive measuring range. For this purpose, adjust the sensitive range in the test run (set parameter 13 to 5kN).

During the balancing procedure, the output signal of the amplifier must be set to approx. 150 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance "W" in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer first switches the amplifier to the sensitive range for 2 seconds and measures the produced voltage. Then the amplifier is switched to the insensitive range for 2 seconds and the produced voltage is measured again.

The two measured zero balance voltages are defined as pressing force of 0 kN. Later measurements are referred to this zero point by subtracting the zero balance voltages from the voltages which are then measured.

If the measured zero balance voltage in one of the measuring ranges is smaller than or equal to 0 mV, then this diagnosis appears.

This diagnosis also appears after deleting the memory as reminder that the zero balance "W" has to be carried out after this.

The diagnosis goes off again when the zero balance voltage is greater than 0 mV after repeated manual balance and subsequent computer zero balance.

Only active with option: 2 SH 2

16.11.99

3006 **Balance greater than 300 mV amplifier A 602 (lower pre-pressure)**

(Warning diagnosis = green lamps flashing)

Every measuring chain is roughly balanced manually on assembling the machine.

The manual balance is carried out in the sensitive measuring range. For this purpose, adjust the sensitive range in the test run (set parameter 13 to 5kN).

During the balancing procedure, the output signal of the amplifier must be set to approx. 150 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance "W" in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer first switches the amplifier to the sensitive range for 2 seconds and measures the produced voltage. Then the amplifier is switched to the insensitive range for 2 seconds and the produced voltage is measured again.

The two measured zero balance voltages are defined as pressing force of 0 kN. Later measurements are referred to this zero point by subtracting the zero balance voltages from the voltages which are then measured.

If the measured zero balance voltage is in a measuring range greater than 300 mV, then this diagnosis appears.

The diagnosis goes off again when the zero balance voltage is smaller than 300 mV after repeated manual balance and subsequent computer zero balance.

Only active with option: 2 SH 2

16.11.99

3007 **Balance smaller than 0 mV amplifier A 603 (lower punch stiffness)**

(Warning diagnosis = green lamps flashing) (B)

Every measuring chain is roughly balanced manually on assembling the machine.

During the balancing procedure, the output signal of the amplifier must be set to approx. 30 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance ”W” in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer measures the voltage produced by the amplifier. The measured zero balance voltage is defined as 0kN. Later measurements are referred to this zero point by subtracting the zero balance voltage from the voltages measured then.

If the measured zero balance voltage is smaller than or equal to 0 mV, then this diagnosis appears.

This diagnosis also appears after deleting the memory as reminder that the zero balance ”W” has to be carried out after this.

The diagnosis goes off again when the zero balance voltage is greater than 0 mV after repeated manual balance and subsequent computer zero balance.

16.11.99

3008 **Balance greater than 300 mV amplifier A 603 (lower punch stiffness) (Warning diagnosis = green lamps flashing) (B)**

Every measuring chain is roughly balanced manually on assembling the machine.

During the balancing procedure, the output signal of the amplifier must be set to approx. 30 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance ”W” in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer measures the voltage produced by the amplifier. The measured zero balance voltage is defined as 0kN. Later measurements are referred to this zero point by subtracting the zero balance voltage from the voltages measured then.

If the measured zero balance voltage is greater than 300 mV, then this diagnosis appears.

The diagnosis goes off again when the zero balance voltage is smaller than 300 mV after repeated manual balance and subsequent computer zero balance.

16.11.99

3009 **Balance smaller than 0 mV amplifier A 604 (upper punch stiffness) (Warning diagnosis = green lamps flashing)**

Every measuring chain is roughly balanced manually on assembling the machine.

During the balancing procedure, the output signal of the amplifier must be set to approx. 30 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance ”W” in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer measures the voltage produced by the amplifier. The measured zero balance voltage is defined as 0kN. Later measurements are referred to this zero point by subtracting the zero balance voltage from the voltages measured then.

If the measured zero balance voltage is smaller than or equal to 0 mV, then this diagnosis appears.

This diagnosis also appears after deleting the memory as reminder that the zero balance ”W” has to be carried out after this.

The diagnosis goes off again when the zero balance voltage is greater than 0 mV after repeated manual balance and subsequent computer zero balance.

16.11.99

3010 **Balance greater than 300 mV amplifier A 604 (upper punch stiffness) (Warning diagnosis = green lamps flashing)**

Every measuring chain is roughly balanced manually on assembling the machine.

During the balancing procedure, the output signal of the amplifier must be set to approx. 30 mV with the measuring point not under load.

The automatic fine balance of the amplifier is carried out by the zero balance ”W” in the test run with the press not under load and at a standstill. The manual balance must be completed before proceeding with the zero balance.

For the zero balance, the computer measures the voltage produced by the amplifier. The measured zero balance voltage is defined as 0kN. Later measurements are referred to this zero point by subtracting the zero balance voltage from the voltages measured then.

If the measured zero balance voltage is greater than 300 mV, then this diagnosis appears.

The diagnosis goes off again when the zero balance voltage is smaller than 300 mV after repeated manual balance and subsequent computer zero balance.

16.11.99

3017 **Balance smaller than 0 mV amplifier A 608 (ejection force)**

(Warning diagnosis = green lamps flashing) (B)

Every measuring chain is roughly balanced manually on assembling the machine.

After the manual balance, the output signal of every amplifier must then be in a rough range of approx. 30 mV with the measuring point not under load (measured with an external measuring instrument).

The automatic fine balance of the amplifiers is carried out by the zero balance ”W” in the test run with the press at a standstill and not under load. The computer proceeds with this balance after manual balance by bringing current actual values of the amplifiers to the value zero by subtraction. If the balance amount required for this is less than 0 mV, then the above diagnosis appears and the press cannot be started.

This diagnosis also appears after deleting the memory as reminder that the zero balance ”W” has to be carried out after this.

The diagnosis goes off again when for example after a repeated manual balance and subsequent computer zero balance, the required computer balance amount is between 0 V and 300 mV.

16.11.99

3018 **Balance greater than 300 mV amplifier A 608 (ejection force)**

(Warning diagnosis = green lamps flashing) (B)

Every measuring chain is roughly balanced manually on assembling the machine.

After the manual balance, the output signal of every amplifier must then be in a rough range of approx. 30 mV with the measuring point not under load (measured with an external measuring instrument).

The automatic fine balance of the amplifiers is carried out by the zero balance ”W” in the test run with the press at a standstill and not under load. The computer proceeds with this balance after manual balance by bringing current actual values of the amplifiers to the value zero by subtraction. If the balance amount required for this is less than 0 mV, then the above diagnosis appears and the press cannot be started.

This diagnosis also appears after deleting the memory as reminder that the zero balance ”W” has to be carried out after this.

The diagnosis goes off again when for example after a repeated manual balance and subsequent computer zero balance, the required computer balance amount is between 0 V and 300 mV.

16.11.99

3021 **Rough measuring range exceeded amplifier A 600 (lower main pressure)**

(Stop diagnosis = red lamps permanently on) (A)

Each pressing force signal is measured by the force measuring unit and measuring amplifier. The measuring amplifier creates a voltage between 0 and 10 volt which corresponds to the pressing force.

To increase the accuracy of pressing force measurement, the amplifiers have two measuring ranges which can be switched over by the computer depending on the set value. The fine measuring range is five times more sensitive than the rough measuring range.

The computer switches over to the rough measuring range for a set pressing force greater than 10% of the max. main pressure pressing force (normally 10 kN at max. 100kN).

If the current pressing force causes the amplifier to create an output signal which is greater than or equal to 10 V, then the machine stops with the above diagnosis.

16.11.99

3022 **Fine measuring range exceeded amplifier A 600 (lower main pressure)**

(Stop diagnosis = red lamps permanently on) (A)

Each pressing force signal is measured by the force measuring unit and measuring amplifier. The measuring amplifier creates a voltage between 0 and 10 volt which corresponds to the pressing force.

To increase the accuracy of pressing force measurement, the amplifiers have two measuring ranges which can be switched over by the computer depending on the set value. The fine measuring range is five times more sensitive than the rough measuring range.

The computer switches over to the rough measuring range for a set pressing force greater than 10% of the max. main pressure pressing force (normally 10 kN at max. 100kN).

If the current pressing force causes the amplifier to create an output signal which is greater than or equal to 10 V, then the machine stops with the above diagnosis.

16.11.99

3025 **Rough measuring range exceeded amplifier A 602 (lower pre--pressure)**

(Stop diagnosis = red lamps permanently on) (A)

Each pressing force signal is measured by the force measuring unit and measuring amplifier. The measuring amplifier creates a voltage between 0 and 10 volt which corresponds to the pressing force.

To increase the accuracy of pressing force measurement, the amplifiers have two measuring ranges which can be switched over by the computer depending on the set value. The fine measuring range is five times more sensitive than the rough measuring range.

The computer switches over to the rough measuring range for a set pressing force greater than 10% of the max. main pressure pressing force (normally 10 kN at max. 100kN).

If the current pressing force causes the amplifier to create an output signal which is greater than or equal to 10 V, then the machine stops with the above diagnosis.

16.11.99

3026 **Fine measuring range exceeded amplifier A 602 (lower pre--pressure)**

(Stop diagnosis = red lamps permanently on) (A)

Each pressing force signal is measured by the force measuring unit and measuring amplifier. The measuring amplifier creates a voltage between 0 and 10 volt which corresponds to the pressing force.

To increase the accuracy of pressing force measurement, the amplifiers have two measuring ranges which can be switched over by the computer depending on the set value. The fine measuring range is five times more sensitive than the rough measuring range.

The computer switches over to the rough measuring range for a set pressing force greater than 10% of the max. main pressure pressing force (normally 10 kN at max. 100kN).

If the current pressing force causes the amplifier to create an output signal which is greater than or equal to 10 V, then the machine stops with the above diagnosis.

16.11.99

3049 **Switch cabinet temperature exceeded (Stop diagnosis = red lamps permanently on) (A)**

2 temperature sensors are installed in the switchboard. The temperature sensor in the switchboard switches at 50˚C, the temperature sensor in the VME system at 60˚C. If one of the two sensors triggers, then the press stops with this diagnosis.

16.11.99

3500 **Check main drive encoder peripheral pulse (Encoder A 271) (Stop diagnosis = red lamps permanently on) (A)**

The peripheral pulse of the encoder in the main drive is used to determine the 1st punch, i.e. when adjusted accordingly, the peripheral pulse corresponds to the query pulse for pressing force of the first punch pair.

The encoder also supplies 3600 pulses per revolution. This means that a new peripheral pulse has to come at the latest after 3600 encoder pulses.

If this is not the case, then the press is stopped with the above diagnosis.

The diagnosis goes off when the press starts up again.

16.11.99

3501 **Check main drive encoder pulses (Encoder A 271) (Stop diagnosis = red lamps permanently on) (A)**

The encoder of the main drive suppliers 3600 pulses per revolution (between two peripheral pulses.

If the selected value deviates from 3600 pulses by more than plus/minus 2 pulses, or by more than one pulse twice in succession, then the press is stopped with the above diagnosis.

The diagnosis goes off when the press starts up again.

16.11.99

9.6. Machine mechanical components: diagnoses 4000...4999

4000 Check Fill–o–Matic speed

(Stop diagnosis = red lamps permanently on)

The set speed for the Fill–o–Matic is defined by parameter 3 ”Fill–o–Matic speed”.

When the press is running, the set and actual speed are constantly compared. If a difference is detected, the system is readjusted until set and actual speed coincide again.

The adjustment is checked according to the following criteria:

1. The actual speed must have reached at least 50% of the set speed after 6 seconds.

2. The set speed must be reached within one minute, with a permissible deviation of ñ 5 1/min.

If at least one of these criteria is not fulfilled, then the press is stopped with this diagnosis.

16.11.99

4002 Check position Fillom. or upper punch removal opening

(Stop diagnosis = red lamps permanently on)

Check clearance Fill–o–Matic proximity initiator (NI) (approx.1 mm). Check NI signal.

The correct position of the Fill–o–Matic is the front position. This position is limited by the clamp and monitored by a proximity initiator, which also checks the punch removal opening at the same time.

If the Fill–o–Matic has not reached the right position, or if the punch removal opening is not closed correctly, then the press stops or cannot be started. In this case, the above diagnosis appears.

The above diagnosis goes off again once the Fill–o–Matic and cover plate are back in the right position.

Only active with option: 2 S 17

16.11.99

4004 **Fill–o–Matic motor temperature exceeded**

(Stop diagnosis = red lamps permanently on)

If the Fill–o–Matic motor temperature exceeds the maximum permissible value of 130˚C, then the machine is stopped with the above diagnosis.

16.11.99

4100 **Check filling depth adjustment**

(Stop diagnosis = red lamps permanently on)

The set value for the filling depth is entered in the set field of parameter ”6” ”tablet filling depth”.

While the machine is running, the set value and actual value are compared continuously. If a difference is detected, then the drive is brought automatically to the set value.

If the adjusting motor of the filling depth adjustment does not turn although the computer has given the adjustment command, then the press is stopped with the above diagnosis.

When the above diagnosis appears, in addition the power supply for this adjusting drive is switched off.

An index number is issued for better fault analysis:

Index	:	Meaning
2	:	no pulse on starting (within 500ms)
8	:	Timeout fault (turns for more than 3 minutes)
9	:	Chip def fault positioning control
10	:	Limit switch right LED active for mode >test run
11	:	Limit switch left LED active for mode >test run

- Check input diode of positioning control (from encoder).
- Check set value for controller.
- Check adjusting motor voltage.
- Check encoder voltage.
- Check enabling contact.

16.11.99

4102 **Reference point filling depth not reached**

(Stop diagnosis = red lamps permanently on)

If the command has been given to approach the reference marks, and the reference mark is not reached within 3 minutes, then the press is stopped with the above diagnosis.

But this diagnosis only appears when the pulses from the encoder come correctly but the reference mark is not reached.

- Check input diode for the limit switch (reference point).
- Visual check whether reference point reached.

The diagnosis goes off again with the next command to approach the reference marks again.

16.11.99

4106 **Perm. filling cam range exceeded**

(Stop diagnosis = red lamps permanently on)

The corresponding filling cams are to be mounted for the various filling depth ranges.

Each filling cam permits a theoretical adjusting range for the filling depth of 5.5 mm, i.e. filling cam ”8” permits filling depths from 2.5 mm to 8 mm.

If this range is not maintained, the press is stopped with the above diagnosis.

16.11.99

4110 **Fill–o–Matic motor current too large**

(Stop diagnosis = red lamps permanently on)

The maximum permissible motor current for the Fill–o–Matic can be entered as set value in parameter ”51”.

If the motor current exceeds the stated set value, then the machine is stopped with this diagnosis.

This diagnosis is deactivated for 3 seconds during ”START” and speed changes.

16.11.99

4112 **Dosing cam is loose (Not P 1200)**

(Stop diagnosis = red lamps permanently on)

16.11.99

4114 **Check mechanical dosing components (Not P 1200)**

(Stop diagnosis = red lamps permanently on)

16.11.99

4200 **Check pre – pressure cyl. height adjustment**

(Stop diagnosis = red lamps permanently on)

The set value for the web height of the pre – pressure station is entered in the set field of parameter ”19” ”Cyl. height pre – pressure”.

While the machine is running, the set value and actual value are compared continuously. If a difference is detected, then the actual value is adjusted to the set value.

But if the adjusting motor of the pre – pressure web height adjustment does not turn although the computer has given the adjustment command, then the press is stopped with the above diagnosis.

When the above diagnosis appears, the power supply for this adjusting drive is switched off.

An index number is issued for better fault analysis:

Index	:	Meaning
2	:	no pulses on starting up (within 500ms)
8	:	Timeout fault (turns longer than 3 min)
9	:	Chip def fault positioning control
10	:	Limit switch right LED active for mode > test run
11	:	Limit switch left LED active for mode > test run

- Check input diode of positioning control (from encoder).
- Check set value for controller – adjusting motor voltage.
- Check encoder voltage
- Check enabling contact

16.11.99

4204 **Reference point pre – pressure cyl. height not reached**

(Stop diagnosis = red lamps permanently on)

If the command has been given to approach the reference marks and the reference mark is not reached within 3 minutes, then the press is stopped with the above diagnosis.

But this diagnosis only appears in the case when the pulses come correctly from the encoder but the reference mark is not reached.

– Check input diode for the limit switch (reference point). – Visual check whether reference point reached.

The diagnosis goes off with the next command to approach the reference marks again.

16.11.99

4212 **Minimum cyl. height pre – or main pressure reached**

(Stop diagnosis = red lamps permanently on)

The actual position for web (cylindrical) height of pre – and main pressure station is monitored. If the web height of pre – or main pressure station falls below the minimum permissible value, then this diagnosis appears and the corresponding drives are stopped.

This diagnosis does not go off again until the reference marks have been approached again, which brings the drives apart.

16.11.99

4300 **Check main pressure cyl. height adjustment**

(Stop diagnosis = red lamps permanently on)

The set value for the web (cylindrical) height of the main pressure station is entered in the set field of parameter ”18” ”cyl. height main pressure”.

While the machine is running, the set value and actual value are compared continuously. If a difference is detected, then the actual value is adjusted to the set value.

If the adjusting motor of the main pressure web height adjustment does not turn although the computer has given the adjustment command, then the press is stopped with the above diagnosis.

If the above diagnosis appears, then the power supply for this adjusting drive is also switched off.

An index number is issued for better fault analysis:

Index	:	Meaning
2	:	no pulses on starting (within 500ms)
8	:	Timeout fault (turns longer than 3 min)
9	:	Chip def fault positioning control
10	:	Limit switch right LED active for mode > test run
11	:	Limit switch left LED active for mode > test run

- Check input diode of positioning control (from encoder).
- Check set value for controller.
- Check adjusting motor voltage.
- Check enabling contact.

16.11.99

4304 **Reference point main pressure cyl. height not reached**

(Stop diagnosis = red lamps permanently on)

If the command has been given to approach the reference marks, and the reference mark is not reached within 3 minutes, then the press is stopped with above diagnosis.

But this diagnosis only appears in the case when the pulses come correctly from the encoder but the reference point is not reached.

- Check input diode for the limit switch (reference point).
- Visual check whether reference point reached.

The diagnosis goes off with the next command to approach the reference marks again.

16.11.99

4400 **Discharge gate not working**

(Stop diagnosis = red lamps permanently on)

The task of the discharge (slow) gate is to guide the tablets into the bad channel.

When the machine is ”off”, the discharge gate is switched to the reject position.

The behaviour after machine ”on” is defined by parameter ”68” ”Slow gate delay”.

If the set value is 0, then the discharge gate is switched to a good position 15 punches after machine ”on”.

When the delay time in parameter ”68” is not equal to 0, then the discharge gate is held in the reject position for this period.

Even when the machine stops for ”emergency off”, ”window flaps open” or ”main switch off”, the discharge gate always switches immediately to the reject position.

The position of the gate is monitored by a proximity switch.

The position of the discharge gate is checked 2 seconds after machine ”off”. If the discharge gate is then not in the reject position, the gate is briefly switched to the good position and then back to the reject position.

If the discharge is still not in the reject position even after the third attempt, this diagnosis appears. This procedure should prevent any tablet jammed in the discharge gate from causing an immediate diagnosis.

The good position of the discharge gate is checked 1 second after changing over. If the discharge gate is then not in the good position, then this diagnosis appears.

16.11.99

4402 **Reject gate not working**

(Stop diagnosis = red lamps permanently on)

Every pressing force maximum is ascertained by a special method, digitised and compared with the limits set in the parameter list.

If the ”individual value upper limit” for pressing force is exceeded, or the pressing force falls below the ”individual value lower limit” and the reject function is switched on at the same time, then these tablets are rejected by the reject gate.

In addition, every time the machine stops by ”motor off”, the reject gate moves down to the next possible gap between the tablets. Then the motor is switched off. On motor ”on”, the gate is moved up again after approx. 8 tablets.

Both the good position of the reject gate and the rejection position are monitored by a proximity switch.

If the computer has given the command to switch the reject gate, and the proximity switch fails to report this switching by querying the gate position, then the press is stopped with the above diagnosis.

16.11.99

4404 **Check sampling gate**

(Stop diagnosis = red lamps permanently on)

The tablet sampling gate controlled by parameter 82 is monitored by a proximity switch.

If the gate is not functioning properly, then the press is stopped with the above diagnosis.

The diagnosis is reset after machine ”start”.

Only active with option : 2 SH 10

16.11.99

4406 **Check parameters for discharge gate**

(Stop diagnosis = red lamps permanently on)

The discharge gate ejects poor tablets. The number of tablets taken out during a rejection procedure is adjusted by the configurator. In addition, parameter 83 (reject delay) also has to be re–defined for this kind of rejecting.

The diagnosis appears when :

- the rotor speed is too high.
- the number of tablets cannot be taken out

Remedy :

- Enlarge the reject delay

16.11.99

4500 **Check speed main drive**
(Stop diagnosis = red lamps permanently on)

The value for ”tablets/h x 1000” is entered as set value in parameter ”1”.

While the machine is running, the set value and actual value are compared continuously. If a difference is detected, then the actual value is adjusted to the set value.

If the actual speed deviates by more than 10% from the set value for longer than 5 seconds, then the press is stopped with the above diagnosis.

16.11.99

4501 **Starting torque of the press too high (Stop diagnosis = red lamps permanently on)**

Check power consumption of main drive. Turn the empty rotor round by hand. Check motor safety switch (switching point).

Like many other functions, the power consumption of the main drive is monitored. A motor safety switch is responsible for monitoring.

If the starting toque or operating torque of the press is too high, then the press is stopped with the above diagnosis.

Only active with option: 2 S 8

xx.xx.xx

4502 **Main drive motor temperature exceeded (423K) (Stop diagnosis = red lamps permanently on)**

Under extreme load, in spite of the strong fan it is still possible for the temperature of the main drive to exceed the permissible value of 423K (150˚C).

In this case, the machine is stopped by a temperature switch with the above diagnosis.

16.11.99

4503 **Power consumption main drive too large (Stop diagnosis = red lamps permanently on)**

The maximum permissible rotor current can be entered as set value in parameter ”50”.

If the motor current exceeds the set set value, then the machine is switched off with this diagnosis. The rotor current can be used to draw conclusions about the easy movement of the punch tools.

This diagnosis is deactivated for 3 seconds during ”START” and speed changes.

16.11.99

4600 **Check oil level (lubricating oil) in lubrication circuit 1 (Warning diagnosis = green lamps flashing)**

The lubricating unit consists of a lubricating oil tank with a pump screwed on to it. The oil level in the lubricating oil tank is monitored by two level switches.

If the oil level has reached the first switching point, then the above warning diagnosis appears on the screen.

16.11.99

4601 **Oil level too low (lubricating oil) lubricating circuit 1 (Stop diagnosis = red lamps permanently on)**

The lubricating unit consists of a lubricating oil tank with a pump screwed on to it. The oil level in the lubricating oil tank is monitored by two level switches.

If the oil level has fallen below a minimum level, then the 2nd level switch switches and the machine is stopped with the above diagnosis.

16.11.99

4602 **No lubricating pulse from the lubricating circuit 1 (Stop diagnosis = red lamps permanently on)**

The lubricating cycle time ”1” is pre–selected in seconds (15 – 9999) for the 1st lubricating circuit. Once this preset time has been reached, then the computer starts the lubricating pump.

Within a few seconds, the pump builds up a pressure so that the individual lubricating points are supplied with a precisely measured quantity of oil via dosing elements. After this the pump is switched off again and the pressure decreases again.

If no value has been entered for the lubricating circuit, then the parameter is automatically set to 50 seconds.

Index number 1 :

The computer gives the lubrication command to the pump at the end of the lubrication cycle time. If the pressure is not built up within 30 seconds, then the machine is stopped with index number 1 (pressure switch does not switch).

Index number 2 :

If the pressure does not decrease again after the command ”pump out” (pressure switch does not switch back within 5 seconds), then the machine is stopped with index number 2.

Note:

Please note that a minimum time of at least 10 seconds is required for the pressure to build up and decrease again. This is why it is not possible to enter a value less than 15 seconds.

16.11.99

4603 **No lubricating pulse from lubricating circuit 2**
(Stop diagnosis = red lamps permanently on)

If a second lubricating circuit is installed, e.g. for separate lubrication of upper and lower punch, again this lubrication cycle time is pre–selected in seconds (15 – 9999). If this pre–selected time is reached, then the computer starts the second lubrication pump.

Here again, this pump builds up a pressure within a few seconds, so that the dosing elements can provide the individual lubrication points with precisely measured quantities of oil. After this the pump is switched off again and the pressure decreases.

Index number 1 :

The computer gives the lubrication command to the pump at the end of the lubrication cycle time. If the pressure is not built up within 30 seconds, then the machine is stopped with index number 1 (pressure switch does not switch).

Index number 2 :

If the pressure does not decrease again after the command ”pump out” (pressure switch does not switch back within 5 seconds), then the machine is stopped with index number 2.

Note:

Please note that a minimum time of at least 10 seconds is required for the pressure to build up and decrease again. This is why it is not possible to enter a value less than 15 seconds.

Only active with option: 2 SH 4

16.11.99

4604 **Check oil level (lubricating oil) of lubricating circuit 2 (Warning diagnosis = green lamps flashing) (B).**

The lubricating unit consists of a lubricating oil tank with a pump screwed on to it. The oil level in the lubricating oil tank is monitored by two level switches.

If the oil level has reached the first switching point, then the above warning diagnosis appears on the screen.

Only valid with option 2 SH 4.

16.11.99

4605 **Oil level too low (lubricating oil) in lubrication circuit 2 (Stop diagnosis = red lamps permanently on)**

The lubricating unit consists of a lubricating oil tank with a pump screwed on to it. The oil level in the lubricating oil tank is monitored by two level switches.

If the oil level has fallen below a minimum level, then the 2nd level switch switches and the machine is stopped with the above diagnosis.

Only valid with option 2 SH 4.

16.11.99

9.7. Production procedure: Diagnoses 5000...5999

5000 **Caution: stop function deactivated**
(Warning diagnosis = green lamps flashing)

The above warning diagnosis appears when one or several diagnoses in the menu point ”F4 – DEACTIVATE REPORTS/DIAGNOSES” have been deactivated (in this case, stop diagnoses have been turned into warning diagnoses).

This warning diagnosis goes off again when no more stop diagnoses are deactivated.

16.11.99

5001 **Caution punch missing**
(Warning diagnosis = green lamps flashing)

If punches have been taken out of the monitoring or statistics by the menu point ”special functions / missing punches”, then the above warning diagnosis appears in the diagnosis line.

16.11.99

5002 **S – rel limit pressing force exceeded**

(Warning diagnosis = green lamps flashing)

A limit value for s – rel of the main pressing force can be entered in parameter no. ”8”.

If this limit value is exceeded, then the above warning diagnosis appears in the diagnosis line and the value which has exceeded the limit appears in the actual field of parameter ”8”.

Diagnosis and actual value are deleted again automatically after 10 seconds.

16.11.99

5004 **Upper punch stiffness exceeded 75% limit.**
(Warning diagnosis = green lamps flashing)

The punch stiffness of the upper punch is monitored by torque measurement

If 75% of the preset limit is reached while the machine is running, then the above warning diagnosis appears on the screen.

The diagnosis is deleted again automatically after 10 seconds.

If punch stiffness exceeds this limit again during this period, then the diagnosis remains.

16.11.99

5005 **Lower punch stiffness exceeds 75% limit**
(Warning diagnosis = green lamps flashing)

The punch stiffness of the lower punch is monitored in the dosing section. Here the force is measured and compared with the preset value in parameter ”46”.

If 75% of the preset limit is reached while the machine is running, then the above warning diagnosis appears on the screen.

The diagnosis is deleted again automatically after 10 seconds.

If the punch stiffness exceeds the limit again during this time, then the diagnosis remains.

16.11.99

5006 **Level control reached in feeding hopper**

(Warning diagnosis = green lamps flashing)

The level in the feeding hopper is queried with a sensor (option). The sensor is mounted in the head piece separately from the feeding hopper.

If the level in the feeding hopper falls below the level control, then the above diagnosis appears.

The diagnosis goes off again automatically when the level in the hopper has exceeded the level control position again.

Only valid with option SH 9a:

(Stop diagnosis = red lamps permanently on)
(Only valid with option SH 9a:)

If the diagnosis is still there after 30 s, the machine is stopped. (This time can be changed by FETTE).

16.11.99

5008 **Approaching Reference marks**
(Stop diagnosis = red lamps permanently on)

If the command is given to approach the reference marks (letter ”V”), then the machine moves to all of the reference marks.

During this approach, the above diagnosis appears.

28.03.00

5009 **Reference marks are approached**
(Warning diagnosis = green lamps flashing) (B)

If the command to approach the reference marks has been given (letter ”V”), then the machine moved to all of the reference marks.

If all reference marks are reached after this, then the above diagnosis appears.

This diagnosis goes off again after 10 seconds.

28.03.00

5010 **Pressing force individual value limit exceeded**

(Diagnosis display = no special lamp signal)

The ”upper individual value limit” stated in parameter ”10” for pressing force has been exceeded for the stated punch.

When the reject function is switched on by parameter ”33”, the tablet is rejected.

This diagnosis is not entered in the diagnosis list. It goes off again automatically after 3 seconds.

The index number indicates the punch which exceeded the individual value limit.

16.11.99

5012 **Pressing force below individual value limit**

(Diagnosis display = no special lamp signal)

The pressing force has fallen below the ”lower individual value limit” stated in parameter ”11” for the stated punch.

When the reject function is switched on by parameter ”33”, then the tablet is rejected.

This diagnosis is not entered in the diagnosis list. It goes off again automatically after 3 seconds.

The index number indicates the punch which has fallen below the individual value limit.

16.11.99

5014 **Ejection force 75 % limit exceeded**

(Warning diagnosis = green lamps flashing)

The permissible ejection force can be prescribed with parameter ”92”.

If the ejection force exceeds 75% of the stated limit, then this warning diagnosis appears for approx. 10 seconds.

Only valid for option 2 SH 22.

16.11.99

5016 **Reject specific punch**

(Warning diagnosis = green lamps flashing).

Punch numbers can be entered in the menu ”SPECIAL FUNCTION / REJECT PUNCH”. The production of these punches is then rejected with every turn of the rotor. In this way it is possible to take samples of specific punches. This specific punch rejection can be deactivated by entering ”0”.

16.11.99

5018 **Pressing force not enough for evaluation**

(Warn – Diagnose = green lamps flashing).

As an option it is possible to prescribe a minimum necessary pressing force. If the pressing force is under this limit, then the tablets are treated as if the punches had been removed. No statistical evaluation and pressing force measurement are carried out.

Only valid for option : A639

16.11.99

5025 **Removal position is approached.**
(Warning diagnosis = green lamps flashing)

If the command to approach the removal position is given, then this position is approached.

The diagnosis goes off again when the removal position has been reached.

16.11.99

5026 **Removal position reached**
(Warning diagnosis = green lamps flashing)

This diagnosis appears once the removal positions have been reached.

The diagnosis goes off again on leaving the removal positions to approach the reference points.

16.11.99

5027 **Interruption by external control**
(Warning diagnosis = green lamps flashing)

The press can be controlled by digital inputs and outputs. The control includes switching the press on and off, and changes to the speed within set limits.

When the control has been activated by parameter 173 the press is made ”ready” by pressing the start button. The press indicates this status by setting the digital output ”ready”. At the same time this diagnosis is set.

The press can now be started by setting the digital input ”enable production”.

As long as no stop diagnosis occurs and the stop button is not pressed, the press follows the signal ”enable production”:

If the signal is 0, then the press stands and shows this diagnosis.

If the signal is 1, then the press starts running and this diagnosis goes off again..

Only active with option : S562

16.11.99

5028 **Tablet congestion at external congestion reporter**

(Warn – Diagnose = green lamps flashing)

This diagnosis is set for as long as tablet congestion is detected at the external congestion reporter.

The congestion reporting function is adjusted with option 593:

Option 593 k1 :

Tablet congestion counts as being detected when the input signal was active at least for the time entered in parameter 136 ”congestion reporting delay for external congestion reporters”. Then this warning diagnosis is set. The pressing force control is switched off. If both stations give this warning, then the machine is stopped and diagnosis 5196 appears.

Option 593 k2 :

As k1, in addition on the congestion side the machine control is automatically switched over so that the machine can continue to produce one – sided.

S Pressing force control is switched off

- Discharge gate is set to bad
- Fill–o–Matic is stopped

Option 593 k3 :

Stop diagnosis for each side. When the machine starts up again, the diagnosis goes off and the congestion reporting delay (parameter 136) starts again. This makes the diagnosis dynamic!!

Only active with option : S567

20.01.00

5030 **Adjust reference marks**

(Diagnosis display = no special lamp signal)

The drives have to be adjusted.

A change to the standard run can only take place when all drives have been adjusted.

The drives which have to be adjusted can be detected because only adjusted drives move in the function ”approach reference marks.

This diagnosis occurs when the CPU or positioning control card (IPOS) of the control computer have been changed, or the saved reference data are not valid.

Drives:

- Dosing (filling depth)
- Cyl. height main pressure
- Cyl. height pre–pressure
- Penetration depth main pressure
- Penetration depth pre–pressure

16.11.99

5032 **Drive for adjustment selected**

A drive has been selected for adjusting the reference marks. This diagnosis is a feedback or confirmation of the machine computer. The index number indicates which drive is concerned.

Index	:	Meaning
1	:	Dosing (filling depth)
2	:	Cyl. height (main pressure)
3	:	Cyl. height pre–pressure
4	:	Penetration depth main pressure (not P1200)
5	:	Penetration depth pre–pressure (not P1200)

16.11.99

5100 **Emergency–off switched**
(Stop diagnosis = red lamps permanently on)

On the press itself there are 2 emergency–off switches, and one emergency–off switch on switchboard and control panel. If one or several emergency–off switches is activated, then the press is stopped by a separate safety circuit with the above diagnosis.

If all emergency–off switches have been switched back, then the above diagnosis goes off again.

16.11.99

5101 **Window flaps open**
(Stop diagnosis = red lamps permanently on)

All 4 window flaps are secured with restricted switches. If one or several flaps are opened, then the machine is stopped by a separate safety circuit or cannot be started up, and the above diagnosis appears on the screen.

If all the window flaps are closed again, then the above diagnosis goes off again.

ATTENTION !

The safety circuit can be bridged in the inching mode by authorised operating staff. In this case, diagnosis ”5300” ”window flap safeguard bridged” appears instead of the above diagnosis.

16.11.99

5103 **Lower punch removal opening open**
(Stop diagnosis = red lamps permanently on)

For installation and removal of the lower punches, the removal plate of the removal station can be fastened or undone with just a few moves . This removal plate holds the punches in the prescribed path.

The correct position of this removal plate is monitored by a proximity initiator.

If installation of the removal plate has been forgotten or it is not in the right position, then the press cannot be started and the above diagnosis appears.

If the removal plate works loose during operation, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the removal plate is back in the right position.

16.11.99

5104 **Upper punch stiffness exceeded**
(Stop diagnosis = red lamps permanently on)

The punch stiffness of the upper punches is monitored by torque measurement.

If the pre–selected limit is exceeded during operation, then the press is stopped with the above diagnosis.

Once the press has started again, the above diagnosis goes off.

16.11.99

5105 **Lower punch stiffness exceeded**
(Stop diagnosis = red lamps permanently on)

The punch stiffness of the lower punches is monitored as part of the dosing function. Here the force is measured and compared with the limit set in parameter ”46”.

If this pre–set limit is exceeded during operation, then the press is stopped with the above diagnosis.

Once the press has started up again, the above diagnosis goes off.

16.11.99

5106 **Individual value limit max. exceeded**

(Stop diagnosis = red lamps permanently on)

A pressing force limit as % of the set pressing force can be entered in parameter 12 ”individual value limit” in order to monitor the press.

If the operator has selected for example max. 20% for the individual value limit, this means that every single pressing force maximum of the produced tablets must lie within plus/minus 20% of the set pressing force.

The first maximum of a pressing force to exceed the upper limit stops the press with this diagnosis. The deviation causing the press to stop is displayed in the actual field of parameter 12. The punch number of the deviating signal appears at the end of the diagnosis line.

In standard run, this diagnosis is deactivated at the start of production to bridge production fluctuations. The deactivation time is coupled at parameter 68 ”discharge gate delay”. If a discharge gate delay time is entered, then this diagnosis is activated after this time. If no discharge gate delay time is entered, then this diagnosis is activated after 10 seconds.

In the setting run, this diagnosis and the switching off function are constantly deactivated.

16.11.99

5108 **Individual value below limit max. exceeded**

(Stop diagnosis = red lamps permanently on) (A)

A pressing force limit as % of the set pressing force can be entered in parameter 12 ”individual value limit” in order to monitor the press.

If the operator has selected for example max. 20% for the individual value limit, this means that every single pressing force maximum of the produced tablets must lie within plus/minus 20% of the set pressing force.

The first maximum of a pressing force which lies below the lower limit stops the press with this diagnosis. The deviation causing the press to stop is displayed in the actual field of parameter 12. The punch number of the deviating signal appears at the end of the diagnosis line.

In standard run, this diagnosis is deactivated at the start of production to bridge production fluctuations. The deactivation time is coupled at parameter 68 ”discharge gate delay”. If a discharge gate delay time is entered, then this diagnosis is activated after this time. If no discharge gate delay time is entered, then this diagnosis is activated after 10 seconds.

In the setting run, this diagnosis and the switching off function are constantly deactivated.

16.11.99

5110 **Pressing force greater than permissible punch load**

(Stop diagnosis = red lamps permanently on)

The punch tools has a maximum load–bearing capacity depending on diameter, form and curvature.

This permissible punch load appears in the set field of the parameter list after selecting the long–term saved product or after entering the punch diameter and tablet form or, in the case of oblong tablets, after entering the long and narrow side and the shape.

This value for permissible punch load can be changed by pre–selecting figure ”9” in parameter ”38”.

Every pressing force maximum ix compared with the permissible punch load shown in the set field of parameter ”4”.

If the maximum of a pressing force is greater than the permissible punch load shown in the set field of the parameter list, then the machine is stopped with the above diagnosis. The pressing force which causes the press to stop is shown in the actual field of parameter ”4”, and the corresponding punch number appears at the end of the diagnosis line.

16.11.99

5112 **S–rel pressing force limit max. exceeded**

(Stop diagnosis = red lamps permanently on)

If the calculated s–rel pressing force actual value exceeds the pre–set re–rel pressing force max. limit (parameter ”9”), then the press is stopped with the above diagnosis. The s–rel value which causes the machine to stop is shown in the actual field of parameter ”8”.

In the standard run, this diagnosis and the switching off function is not activated until 10 seconds after the start to bridge fluctuations at the start of production.

In setting run, this diagnosis and the switching off function are constantly deactivated.

16.11.99

5114 **Pressing force mean value limit max. exceeded**

(Stop diagnosis = red lamps permanently on)

In parameter ”7” the maximum pressing force mean value limit can be pre–selected in %.

For example: if the value 10 is entered, this means that the limits for switching off the machine are plus / minus 10% of the pressing force mean value.

If the upper limit of the pressing force mean value is exceeded, then the machine stops with the above diagnosis.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

16.11.99

5116 **Pressing force below max. mean value limit.**

(Stop diagnosis = red lamps permanently on)

In parameter ”7” the maximum pressing force mean value limit can be pre–selected in %.

For example: if the value 10 is entered, this means that the limits for switching off the machine are plus / minus 10% of the pressing force mean value.

If the lower limit of the pressing force mean value is exceeded, then the machine stops with the above diagnosis.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

16.11.99

5118 **No. of bad tablets too large**

(Stop diagnosis = red lamps permanently on)

The pressing force limits for the good production range can be adjusted with the upper individual value limit and the lower individual value limit.

This number can be limited to keep down the number of tablets outside the pre–selected individual value limits when the reject function is switched off, or the number of rejected tables when the reject function is ”on”.

For this purpose, the number of permissible bad tablets is entered in parameter ”52”, referred to a reference number of tablets to be pre–selected in ”parameter 54” (e.g. 3 bad tablets per 200 pressed tablets).

If the produced number of bad tablets is greater than the entered parameter value, then the press is stopped with the above diagnosis.

Note: with reject function ”on”, the first 8 tablets after machine ”on” and the tablets after motor ”off” are not counted.

In standard run, this diagnosis and the switching off function is not activeated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

16.11.99

5120 **Same punch bad tablet**

(Stop diagnosis = red lamps permanently on)

The pressing force limits for the good production range can be adjusted with the upper individual value limit and the lower individual value limit.

This number can be limited to keep down the number of tablets outside the pre–selected individual value limits when the reject function is switched off, or the number of rejected tables when the reject function is ”on”.

For this purpose, the number of permissible bad tablets produced in succession by the same punch is entered, referred to a reference tablet number to be pre–selected in ”parameter 54” (e.g. 4 bad tablets from punch with the same number per 250 pressed tablets).

If the number of produced bad tablets is then greater than the entered parameter value, then the press is stopped with the above diagnosis and the punch number is displayed in the diagnosis line.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

16.11.99

5122 **Re–adjustment limit reached**

(Stop diagnosis = red lamps permanently on)

The filling depth is readjusted to achieve a constant pressing force and thus constant tablet weight.

But re–adjustment is only in a range permitted by the filling cam. These limits are defined in the computer by entering the filling cam range.

Example: filling cam ”8” has a permissible range from 2.5 to 8 mm.

If the values exceed this range, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the filling depth is back in the permissible range.

16.11.99

5124 **Individual value limit upper pre–pressing force max. exceeded**

(Stop diagnosis = red lamps permanently on)

The upper individual value limit for prepressing force can be selected in parameter ”61” as % of the set pre–pressing force, in order to monitor the press. If the operator has selected for example max. 20% for the upper individual value limit pre–pressing force, this means that every individual pre–pressing force maximum must be under the limit + 20% of the set pressing force.

The first pre–pressing force maximum above this selected limit stops the machine with the above diagnosis and the number of the triggering punch is displayed.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

Only active with option: 2 SH 2

16.11.99

5126 **Punch Saving System active**

(Stop diagnosis = red lamps permanently on)

The upper individual value limit for pre–pressing force in % is entered in parameter ”61” to protect the punches.

If the operator has selected the upper limit as max. 20%, for example, the first pre–pressing force maximum outside this limit causes the press to stop with the above diagnosis and the number of the triggering punch is displayed.

The tablet web height of the main pressure station is then moved apart by 1 mm. At the same time, the web height of the pre–pressure moves apart by 0.05 mm. The rotor then moves on 12 stations with the reject gate in reject position.

The press then stops again and the web height is reset to the set value apart from the starting relief value stated in parameter ”64”. Once this value is reached, the press starts again; after a further 15 stations, the reject gate also functions normally again.

After 20 stations, the web heights of both pre–pressure and main pressure are brought back to the original set values.

After this, production continues as before the fault and the above diagnosis goes off again.

Only active with option : 2 S 43

16.11.99

5128 **Lower pre–pressing force below max. individual value limit**

(Stop diagnosis = red lamps permanently on)

The lower individual value limit for pre–pressing force can be pre–selected in % of the set pre–pressing force in parameter ”62” in order to monitor the press. If the operator has selected max. 20% for example for the lower individual value limit pre–pressing force, this means that every individual pre–pressing force maximum has to be above the limit –20% of the set pre–pressing force.

The first pre–pressing force maximum to lie below this selected limit stops the machine with the above diagnosis
and the number of the triggering punch is displayed.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

Only active with option: 2 SH 2

16.11.99

5130 **Pre–pressing force mean value limit max. exceeded**

(Stop diagnosis = red lamps permanently on)

The maximum pre–pressing force mean value limit can be pre–selected in parameter ”60”.

The maximum limits for the pre–pressing force mean value are entered in %. Example: If the value ”10” is entered, this means that the limits for switching off the machine are plus/minus 10% of the pressing force mean value.

If the upper limit of the pre–pressing mean value is exceeded, then the press stops with the above diagnosis.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

Only active with option: 2 SH 2

16.11.99

5132 **Pre–pressing force below max. mean value limit.**

(Stop diagnosis = red lamps permanently on)

The maximum pre–pressing force mean value limit can be selected in parameter ”60”.

The maximum limits for the pre–pressing force mean value are entered in %. Example: If the value ”10” is entered, this means that the limits for switching off the machine are plus/minus 10% of the pressing force mean value.

If the pre–pressing falls below the mean value lower limit, then the press stops with the above diagnosis.

In standard run, this diagnosis and the switching off function is not activated until approx. 10 seconds after the start to bridge fluctuations at the start of production.

In the setting run this diagnosis and the switching off function is constantly deactivated.

Only active with option: 2 SH 2

16.11.99

5134 **Tablet weight mean value limit max. exceeded.**
(Stop diagnosis = red lamps permanently on)

The maximum weight mean value limits can be pre–selected in parameter ”23”

The maximum limits for weight mean value are entered in %.

Example: if the value ”5” is entered, this means that the limits at which the machine is switched off are plus/minus 5% of the tablet set weight.

If the upper limit is exceeded, then the press is stopped with the upper diagnosis.

In this case the tablet weight mean value which has caused the press to stop is shown in the actual field of parameter ”22”.

Only active with option: P 12

16.11.99

5136 **Tablet weight below max. mean value limit.**
(Stop diagnosis = red lamps permanently on)

The maximum weight mean value limits can be pre–selected in parameter ”23”

The maximum limits for weight mean value are entered in %.

Example: if the value ”5” is entered, this means that the limits at which the machine is switched off are plus/minus 5% of the tablet set weight.

If the tablet weight falls below the lower limit, then the press is stopped with the above diagnosis.

In this case the tablet weight mean value which has caused the press to stop is shown in the actual field of parameter ”22”.

Only active with option: P 12

16.11.99

5138 **Tablet thickness mean value limit max. exceeded.**
(Stop diagnosis = red lamps permanently on)

The maximum thickness mean value limits can be pre–selected in parameter ”26”.

The maximum limits for the thickness mean value are entered in %.

Example: if the value ”5” is entered, this means that the limits at which the machine is switched off are plus/minus 5% of the tablet set thickness.

If the upper limit for tablet thickness is exceeded, then the press is stopped with the upper diagnosis.

In this case, the tablet thickness mean weight which has caused the machine to stop is shown in the actual field of parameter ”25%.

Only active with option: P 12

16.11.99

5140 **Tablet thickness below max. mean value limit.**
(Stop diagnosis = red lamps permanently on)

The maximum thickness mean value limits can be pre–selected in parameter ”26”.

The maximum limits for thickness mean value are entered in %.

Example: if the value ”5” is entered, this means that the limits at which the machine is switched off are plus/minus 5% of the tablet set thickness.

If the tablet thickness falls below the lower limit, then the press is stopped with the above diagnosis.

In this case, the tablet thickness mean value which has caused the machine to stop is shown in the actual field of parameter ”25”.

Only active with option: P 12

16.11.99

5142 **Tablet hardness mean value limit max. exceeded.**
(Stop diagnosis = red lamps permanently on)

The maximum hardness mean value limits can be pre–selected in parameter ”29”.

The maximum limits for hardness mean value are stated in %.

Example: if the value ”5” is entered, this means that the limit at which the machine is switched off is plus/minus 5% of the tablet set hardness.

If the upper limit of tablet hardness is exceeded, then the press is stopped with the above diagnosis.

In this case, the tablet hardness mean value which has caused the machine to stop is shown in the actual field of parameter ”28”.

Only active with option: P 12

16.11.99

5144 **Tablet hardness below max. mean value limit.**
(Stop diagnosis = red lamps permanently on)

The maximum hardness mean value limits can be pre–selected in parameter ”29”.

The maximum limits for hardness mean value are entered in %.

Example: if the value ”5” is entered, this means that the limits at which the machine is switched off are plus/minus 5% of the tablet set value.

If the tablet hardness falls below the lower limit, then the machine stops with the upper diagnosis.

In this case, the tablet hardness mean value which has caused the machine to stop is shown in the actual field of parameter ”28”.

Only active with option: P 12

16.11.99

5146 **Tablet weight s–rel limit exceeded**
(Stop diagnosis = red lamps permanently on)

If the calculated s–rel weight actual value parameter ”24” (shown in the actual field) exceeds the pre–selected s–rel weight limit, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the machine starts up.

Only active with option: or P 12

16.11.99

5148 **Tablet thickness s–rel limit exceeded**
(Stop diagnosis = red lamps permanently on)

If the calculated s–rel thickness actual value parameter ”27” (shown in the actual field) exceeds the pre–selected s–rel weight limit, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the machine starts up.

Only active with option: P 12

16.11.99

5150 **Tablet hardness s–rel limit exceeded**
(Stop diagnosis = red lamps permanently on)

If the calculated s–rel hardness actual value parameter ”30” (shown in the actual field) exceeds the pre–selected s–rel hardness limit, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the machine starts up.

Only active with option: P 12

16.11.99

5152 **Adj. range cyl. height main pressure (weight control) exceeded.**
(Stop diagnosis = red lamps permanently on) (A)

If control ”2” is switched on, then the web height of the main pressure station is adjusted according to the tablet weight deviations detected by the Checkmaster.

If the actual value for web height deviates by more than 5 adjustment steps from the set value, then the press stops with the above diagnosis.

Web height	= >	Adjustment step
0.00 – 0.99 mm	= >	0.01 mm
1.00 – 1.99 mm	= >	0.02 mm
	etc.	
8.00 – 8.99 mm	= >	0.09 mm

but maximum 0.10 mm

Only active with option: P 12 and 2 S 19

28.03.95

5154 **Adj. range set pressing force (hardness control) exceeded.**
(Stop diagnosis = red lamps permanently on)

If control ”3” is switched on, then the pressing force of the main pressure station is adjusted according to the tablet hardness deviations detected by the Checkmaster. The change in pressing force is produced by changing the web height.

If the actual value for web height deviates by more than 5 adjustment steps from the set value, then the press stops with the above diagnosis.

Web height	= >	Adjustment step
0.00 – 0.99 mm	= >	0.01 mm
1.00 – 1.99 mm	= >	0.02 mm
	etc.	
8.00 – 8.99 mm	= >	0.09 mm

but maximum 0.10 mm

Only active with option: P 12 and 2 S 41

16.11.99

5157 **Good production target reached**
(Stop diagnosis = red lamps permanently on)

The set value for good production can be entered in parameter ”14”. the currently achieved actual value is shown in the actual field.

If the pre–selected good production target is achieved during production, then the machine is stopped with the above diagnosis.

16.11.99

5158 **Check extraction vacuum**
(Stop diagnosis = red lamps permanently on)

The extraction vacuum for dust extraction in the pressing chamber can be pre–selected in hPa in parameter ”49”. The machine automatically works up to the pre–selected parameter shown in the set field and then holds this level. A deviation of 0.5 hPa is tolerated.

If the set value is not reached within 1 minute then the press is stopped with this diagnosis.

Only active with option : 2 SH 5

16.11.99

5159 **Tablet congestion in good channel**

(Stop diagnosis = red lamps permanently on)

When pressing ”difficult” substances, tablet congestion in the good channel cannot be completely ruled out.

If the tablets become congested, then a capacitive proximity switch switches and the press is stopped with the above diagnosis.

Only active with option: 2 SH 7

16.11.99

5161 **Check punch**

(Stop diagnosis = red lamps permanently on)

Pressing force limits can be entered in % in parameter ”65” for special punch monitoring. These limits refer to mean values formed at the beginning specially for each punch pair.

These limits are then used for comparison with following pressing force mean values formed for every punch pair. These mean values are calculated for every punch pair over 10 pressing forces.

When the values exceed or fall below the pre–selected limits, the machine stops with the above diagnosis and the punch number is shown in the diagnosis line.

The diagnosis goes off again with motor ”on”.

Only active with option: S 31

16.11.99

5165 **Punch Saving System has triggered 5 times**

(Stop diagnosis = red lamps permanently on)

When the pre–pressing force exceeds the pre–selected upper pressing force limit, the press is stopped in such a way that the triggering punch comes to a halt in front of the main pressure station.

The main pressure rolls are then moved apart automatically 1 mm and the triggering punch is moved through the main pressure station. The web height of the main pressure is then automatically reduced to the value stated in parameter ”64” and the pre–pressure station automatically moves 0.05 mm apart to provide starting relief.

After this, the press starts up again automatically. After 20 rejected tablets, the original web heights for main pressure and pre–pressure are approached again automatically so that production continues as before the fault.

If this moving apart/together occurs 5 times within 5 minutes, then the machine is stopped with the above diagnosis.

Only active with option: S43

16.11.99

5167 **Approach reference marks**
(Stop diagnosis = red lamps permanently on)

If a condition exists in which it is necessary to approach the reference marks again, then this diagnosis appears with a corresponding index number.

Index	:	Meaning
1	:	Reference marks were not approached successfully.
2	:	No position change in approached drive
3	:	Positioning control memory was deleted
4	:	To leave the removal position of the pressure stations
5	:	Minimum web height reached
6	:	Check sum fault in reference data set
7	:	Switched off with drives moving

If this diagnosis appears, then the press is stopped or cannot be started again. The diagnosis goes off again after approaching the reference marks.

16.11.99

5168 **Weight deviation of a sample tablet too great**
(Stop diagnosis = red lamps permanently on)

If the individual test tablets are tested automatically according to the Ph.Eur.Vol., and if the weight of a tablet is greater than twice the maximum permissible percentage, then the press stops with the above diagnosis.

Ph. Eur. Vol. 3:
Sample number / n = 20
Average weight
up to 80 mg 10%
greater than 80 to 250 mg 7,5%
greater than 250 mg 5%

The diagnosis goes off again after machine ”on”.

Only active with option: P 12

xx.xx.xx

5170 **Three values outside weight window**
(Stop diagnosis = red lamps permanently on)

The permissible ”window” for parameters ”102/103” ”weight window” can be entered in (%) of set weight in which the sample tablets are accepted.

If 3 successive values are outside the window, then the press is stopped with the above diagnosis.

After the command ”continue sample”, the Checkmaster deletes the diagnosis again.

Only active with option: P 12

16.11.99

5174 **Three values outside the thickness window (Stop diagnosis = red lamps permanently on)**

The permissible ”window” for parameters ”109/110” ”thickness window” can be entered in (%) of the set thickness in which the sample tablets are accepted.

If three successive values are outside the window, then the press stops with the above diagnosis.

After the command ”continue samples”, the Checkmaster deletes the diagnosis again.

Only active with option: P 12

16.11.99

5178 **Values outside the hardness window. (Stop diagnosis = red lamps permanently on)**

The permissible window for parameters ”118/119” ”hardness window” can be entered in (%) of the set hardness in which the sample tablets are accepted.

If 3 successive values are outside the window, then the press is stopped with the above diagnosis.

After the command ”continue sample”, the Checkmaster deletes the diagnosis again.

Only active with option: P 12

16.11.99

5182 **Ejection force exceeded**

(Stop diagnosis = red lamps permanently on)

The permissible ejection force can be selected with parameters ”92” and ”93”. If the ejection force exceeds the set limit, then the machine is switched off with the above diagnosis.

The diagnosis goes off when the press starts up again.

16.11.99

5184 **Machine standstill longer than 10 mins, clean Fill–o–Matic (Stop diagnosis = red lamps permanently on)**

When salt is being pressed, the Fill–o–Matic has to be cleaned after 10 minutes standstill. The machine cannot be started again until the operator confirms that the Fill–o–Matic has been cleaned. The confirmation question comes when the operator tries to start the machine. Question and answer are entered in the removal report together with operator's name, date and time.

The machine cannot be started until positive confirmation has been given. The diagnosis goes off after "machine on".

Only valid with Option S548 (salt option)

16.11.99

5190 **Individual value weight outside T2 limit (Stop diagnosis = red lamps permanently on)**

The maximum accepted limits (%) of set weight are entered in parameters "104 / 107".

If an individual weight value is outside these limits, then the press stops at the end of the sample with the above diagnosis.

The diagnosis goes off again after "machine on".

Only active with option : P12

16.11.99

5192 **Individual value thickness outside T2 limit (Stop diagnosis = red lamps permanently on)**

The maximum accepted limits (%) for set thickness are entered in parameters "111/114".

If an individual thickness value is outside these limits, then the press stops after ending the sample with the above diagnosis.

The diagnosis goes off again after "machine on".

Only active with option : P12

16.11.99

5194 **Individual value hardness outside T2 limit (Stop diagnosis = red lamps permanently on)**

The maximum accepted limits (%) for set hardness are entered in parameters "120/123".

If an individual hardness value is outside these limits, then the machine stops after ending the sample with the above diagnosis.

The diagnosis goes off again after ”machine on”.

Only active with option : P12

16.11.99

5196 **Tablet congestion at both external congestion reporters (Stop diagnosis = red lamps permanently on) (A)**

If tablet congestion occurs at both stations, then the press is stopped with this diagnosis at the end of the post–running times.

The diagnosis goes off again after ”machine on”.

This diagnosis is deactivated in the setting run.

Only active with option : S567

21.01.00

5197 **Average weight outside T2–limit (Stop diagnosis = red lamps permanently on) (A)**

The maximum accepted limits are entered in parameters ”143/146”. If the average weight for a sample is outside these limits, then the press stops with the above diagnosis.

The diagnosis goes off again after ”machine on”.

Only active with option : P12

16.11.99

5200 **Automatic main encoder adjustment necessary (Stop diagnosis = red lamps permanently on)**

The machine computer needs the mechanical position of the peripheral pulse for mechanically correct allocation of the measuring points and rejection gate on the die plate. With the corresponding machine command, the machine computer finds the position of the peripheral pulse and adopts this value. This diagnosis goes off again when the command has been processed successfully.

For this purpose, punch no. 1 must stand centrally under the main pressure of station 1. When centring the punch, a tolerance of +/– 5 mm is permissible. The command is started in F6–SETTING UP. The machine turns to the peripheral pulse and then stops.

16.11.99

5201 **Automatic main encoder fine adjustment (Warn–Diagnose = red lamps permanently on)**

If this diagnosis appears, then the fine adjustment of the main encoder is active. The following prerequisites are necessary for this fine adjustment:

- Setting run
- Main pressing force > 2kN (finer MB) or
- Main pressing force > 10kN (rougher MB)

Meaning of the index numbers:

1 : Machine turns in setting run. 10 seconds after start, the measured values for main pressing force are evaluated. If these are unusable (e.g. pressing force inadequate), then this index number remains.

2 : Usable measured values are registered, the fine adjustment is calculated.

The precise position of the peripheral pulse is measured with the machine running. The diagnosis goes off again when the fine adjustment has been successfully completed. In addition, diagnosis 5202 appears (fine adjustment completed). The machine can then start in the standard run.

16.11.99

5202 **Automatic main encoder fine adjustment completed (Stop – Diagnose = red lamps permanently on)**

If this diagnosis appears, then the position of the peripheral pulse has been ascertained. Two different methods can be used here. The index number indicates which method has been used.

Index number:

1 : The position of the pressing force maximum to the peripheral pulse is clear. Only possible for ideal pressing force progression.

2 : After 50 revolutions the position of the peripheral pulse is ascertained from the measured pressing force maximum.

The system can then change to the standard run. The diagnosis goes off again when the machine starts.

16.11.99

5210 **Values outside diameter window (Stop diagnosis = red lamps permanently on)**

In parameters ”150/151”, ”diameter window”, the permissible window can be entered in(%) of the set diameter in which the sample tablets are accepted.

The number of values outside the window can be adjusted in the Checkmaster menu (see Checkmaster documentation).

If the adjusted number of values is outside the window, then the press stops with the above diagnosis.

Checkmaster 4 deletes the diagnosis again with ”machine start”.

Only active with option : P 12 and S620

16.11.99

5300

Inching mode switched on
(Special warning diagnosis = red lamps permanently on)

Normally the press is stopped by the safety switch when the window flaps are opened.

ATTENTION !

Authorised persons can switch on a special inching mode so that the press can be run for service purposes with the window flaps open.

If the inching mode is switched on, the system switches over automatically to the test run.

The main drive or the Fill–o–Matic or both together can be operated in the inching mode with the inching button at reduced speed. In addition, in the inching mode the drives can be moved and adjusted.

The diagnosis goes off again when the inching mode is disconnected from the machine.

For safety reasons, the machine should only be operated by one person at the same time in this mode, i.e. with the window flaps open.

20.01.00

9.8. Galenics : diagnoses 6000...6999

6000 Galenics CPU does not respond (Warning diagnosis = green lamps flashing)

This diagnosis appears when the galenics CPU is not present although the galenics option has been adjusted. It is also possible that the galenics CPU is not connected to the machine CPU.

16.11.99

6001 Galenics: mains connection to IC interrupted (Warning diagnosis = green lamps flashing)

The mains connection between galenics CPU and IC is interrupted. Requested galenics measured data cannot be transmitted.

Remedy :

- Check BNC mains cable (Ethernet).
- Re–boot IC and VME systems.

16.11.99

6002 Galenics software version not compatible (Warning diagnosis = green lamps flashing)

The software version of the galenics CPU is not compatible with the software version of the machine. This can result in faults in the galenics application program.

16.11.99

9.9. Customer–specific : Diagnoses 7000...7999

7000 **Customer–specific diagnosis no. 1 (Warning or stop diagnosis)**

16.11.99

7001 **Customer–specific diagnosis no.2 (Warning or stop diagnosis)**

16.11.99

7002 **Customer–specific diagnosis no.3 (Warning or stop diagnosis)**

16.11.99

7003 **Customer–specific diagnosis no.4 (Warning or stop diagnosis)**

16.11.99

7004 **Customer–specific diagnosis no.5**

Customer–specific output is set.

16.11.99

9.10. Peripheral equipment: diagnoses 8000...9999

8000 **Check Gratex unit**

(Stop diagnosis = red lamps permanently on)

If the Gratex unit is connected up, then all functions including switching on and off, adjusting speed and post–running of the Gratex unit are controlled and monitored by the computer.

The Gratex unit is switched on at the same time as the press. After the press has been switched off, the Gratex unit runs on to deburr all tablets.

The post–running time can be adjusted in parameter 163. If the parameter is not set then the Gratex unit runs on for 20 revolutions.

The speed of the Gratex unit is pre–selected in parameter ”34”.

If ”0” is entered in the set field of parameter ”34”, then the speed of the Gratex unit is 0.8 times the press speed.

The actual speed of the Gratex unit is shown in the actual field.

If the drum of the Gratex unit is turning, then pulses are continuously produced by a proximity switch. If no pulse is produced within 15 seconds, then the press is stopped with the above diagnosis.

This time of 15 seconds also says that the Gratex unit may only be stopped manually for up to 15 seconds, e.g. to change the container, without the press itself stopping.

Only active with option: P 2

16.11.99

8002 **Check extraction pressure at Gratex unit**

(Stop diagnosis = red lamps permanently on)

The extraction pressure at the Gratex unit can be monitored with a flow controller. The flow controller is plugged into a defined position on the extraction pipe and connected electrically to the drive housing of the Gratex unit (plug connection).

If the extraction function of the running Gratex is not active for 10 seconds (no flow at the transducer), then the press is stopped with the above diagnosis.

The diagnosis goes off again when a vacuum is present.

Only active with option: P2

16.11.99

8050 **Check extraction vacuum at dedusting unit**

(Stop diagnosis = red lamps permanently on)

There is no extraction vacuum at the dedusting unit.

The extraction pressure is monitored for example by a flow controller in the extraction pipe. Presence of a vacuum is reported by a level of 24 V.

If the extraction is not active for approx. 10 seconds when the machine is running – no flow at the transducer – then the press is stopped with the above diagnosis.

The diagnosis goes off again when the vacuum is restored.

Only active with option : SH 6

16.11.99

8200 **Check sampling gate**
(Stop diagnosis = red lamps permanently on)

If tablet samples are taken from a gate controlled by the Checkmaster, the functioning of the gate is monitored by a proximity switch. If the gate is not functioning properly, then the press stops with the above diagnosis.

After sending the command ”samples continue”, the Checkmaster deletes the diagnosis again.

Only active with option: P 12

16.11.99

8202 **No tablet sampled for Checkmaster.**
(Stop diagnosis = red lamps permanently on)

If a number greater than ”0” is entered for parameter ”74”, then a sample is taken immediately after the start of production and every time the pre–set number of tablets is reached.

If no tablet is sampled 5 times in succession, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the machine starts.

Only active with option: P 12

16.11.99

8204 **Change sampling store**
(Warning diagnosis = green lamps flashing)

The store consists of 12 glasses for samples. If the system automatically detects that the store of glasses is used up, then the above warning diagnosis appears.

The sampling store is set back to position 1 again with the button ”Quit” on the ”Checkmaster”.

Only active with option: P 12

16.11.99

8206 **Sampling store not changed**
(Stop diagnosis = red lamps permanently on)

If diagnosis ”8204” appears and if the store has not been changed or brought to the starting position after the next ”sampling command” from the press, then the press is stopped with the above diagnosis.

After pressing the ”Quit” button on the Checkmaster, the store moves back to its starting position and the diagnosis goes off again.

Only active with option : P 12

16.11.99

8208 **Caution, weigher not ready**
(Warning diagnosis = green lamps flashing)

If a number greater than ”0” is entered for parameter ”74”, then a sample is taken immediately after the start of production and every time the pre–set number of tablets is reached.

Prerequisite for measuring sample weight is that the weigher functions, i.e. the weigher is appropriately still and air movement is limited.

If the computer now gives the command to sample a tablet but the weigher indicates that the weight is not measured, then the above warning diagnosis appears after 30 seconds.

This warning diagnosis goes off again after eliminating the cause.

Only active with option: P 12

16.11.99

8210 **Weigher not ready**
(Stop diagnosis = red lamps permanently on)

If the warning diagnosis ”Caution, weigher not ready” appears for longer than 2 minutes, then the press is stopped with the above diagnosis.

This means that the weigher is not functioning properly.

Correct weighing means that the weigher has to be still with limited air movement around the weigher.

The above diagnosis goes off again the next time the machine starts.

Only active with option: P 12

16.11.99

8212 **Check ratio tablet number (sample) to sampling**
(Stop diagnosis = red lamps permanently on)

If the Checkmaster is connected up and appropriate value pre–selected in parameters ”74” and ”101” (tablet number weight), then the number of tablets pre–selected in parameter ”101” is sampled and evaluated every time the sampling number is reached.

But if evaluation of the sample takes longer then time available to the next sampling phase (or in other words, if the number of tablets in parameter ”101” is so large that the time for evaluation up to the next sampling phase is not adequate), then the press stops with the above diagnosis.

The diagnosis goes off again when the sampling number parameter ”74” is increased or the number of tablets ”101” decreased.

When the values are selected sensibly, ”overlaps” in the evaluation are ruled out from the very start.

Only active with option: P 12

16.11.99

8214 **Check DMS (hardness measurement)**
(Stop diagnosis = red lamps permanently on)

If in hardness measurement an implausible signal is registered from the DMS measuring point, then the press is stopped with the above diagnosis.

In this case, the measuring point has to be replaced.

Only active with option: P 12

16.11.99

8216 **Check calibration weight, thickness, hardness**
(Stop diagnosis = red lamps permanently on)

If this diagnosis appears, then the Checkmaster has transmitted a corresponding signal.

In this case, the Checkmaster has to be re–calibrated.

Only active with option: P 12

16.11.99

8218 **Check thickness measuring unit**
(Stop diagnosis = red lamps permanently on)

If this diagnosis appears, then the thickness measuring unit in the Checkmaster can be defect, dirty or incorrect height setting.

(Zero point outside the tolerance)

Only active with option: P 12

16.11.99

8220 **Check zero signal thickness**
(Stop diagnosis = red lamps permanently on)

If the above diagnosis appears, then the thickness measuring unit is receiving different zero signals, e.g. from dirt.

Only active with option: P 12

16.11.99

8222 **Check hardness drive**
(Stop diagnosis = red lamps permanently on)

If the above diagnosis appears, then the drive of the hardness measuring unit can be mechanically defect, e.g. dirty or jammed.

Only active with option: P 12

16.11.99

8224 **Check data weigher**
(Stop diagnosis = red lamps permanently on)

If the above diagnosis appears this means that the weigher is not producing a signal so that the weights of the tablets cannot be transferred to the computer.

In this case the weigher or the transmission line can be defect.

Only active with option: P 12

16.11.9

8226 **Check data transmission from Checkmaster (Stop diagnosis = red lamps permanently on)**

Data transmission from the Checkmaster is monitored by the machine computer. If transmission faults are found or if there is no communication, then the press stops with the above diagnosis.

Only active with option: P12

16.11.99

8228 **Sample not yet complete (Warning diagnosis = green lamps flashing)**

If after the start of ”sampling”, the Checkmaster receives fewer tablets than the set set number, then the above diagnosis is transmitted by the Checkmaster and displayed as warning diagnosis.

The press then sends the start commands to the ”Checkmaster” again.

Only active with option: P 12

16.11.99

8230 **Checkmaster sample not complete (Stop diagnosis = red lamps permanently on)**

If the machine computer receives the warning diagnosis ”sample not complete” 5 times within a sample, then the press is stopped with the above diagnosis.

The diagnosis goes off again after the ”sample continue” command.

Only active with option: P 12

16.11.99

8232 **Check Checkmaster**
(Stop diagnosis = red lamps permanently on)

If during a sample no ”sample complete” is transmitted by the Checkmaster within 5 minutes, then the press is stopped with the above diagnosis.

The diagnosis goes off again when the Checkmaster is switched on/off and the operator has changed the batch.

Only active with option: P 12

16.11.99

8300 **Check barrel change**

(Stop diagnosis = red lamps permanently on)

If a Loading Center is connected up, then this is monitored by the computer.

The system moves on from one barrel to the next when the set value of parameter ”16” is reached.

If the signal for the system to move on has come from the computer and no pulses are generated by the Loading Center for 5 seconds, then the press stops with the above diagnosis.

The diagnosis goes off again once a barrel position has been approached successfully.

Only active with option : P 6

16.11.99

8302 **Barrel production target reached**

(Stop diagnosis = red lamps permanently on)

If the number of barrels still to be filled is pre–selected in parameter ”72” and thus target number has been reached, then the press stops with the above diagnosis.

The diagnosis goes off again after entering a ”0” or increasing the set number in parameter ”72”.

Only active with option: P 6

16.11.99

8304 **Check barrel conveyor**

(Stop diagnosis = red lamps permanently on)

If a corresponding conveyor is connected, then this is monitored, i.e. the conveyor has its own function control and sends the results of this control to the press.

If the barrel conveyor is not functioning according to its own control, then the press is stopped with the above diagnosis.

The diagnosis goes off after the press starts up again.

Only active with option: P 6

16.11.99

8400 **Washing is active with stage :**
(Warning diagnosis)

The washing program has been started. The index number of the diagnosis shows which program stage is active. This diagnosis goes off again once the washing program has finished.

16.11.99

8402 **Washing program -- Pause**
(Warning diagnosis)

The operator has stopped the washing program. If the washing program is started again, it continues with the last active program stage.

16.11.99

8404 **Washing program interrupted**
(Warning diagnosis)

The washing program cannot be continued for the following reasons :

Index	:	Meaning
1	:	Fill–o–Matic valve has not opened
2	:	Discharge valve has not switched
3	:	Too much water in the machine
4	:	Customer–specific input is active
5	:	Emergency–off or window flaps open

16.11.99

8500 **Too many metal pulses**

(Stop diagnosis = red lamps permanently on)

The permissible reject pulses for a connected metal detector can be selected in parameters ”55” and ”56” per selected number of tablets (e.g. 2 permissible metal pulses per 10 x 1000 = 10.000 produced tablets).

If the number of rejected pulses is larger than the set value, then the press is stopped with the above diagnosis.

In the setting run, this diagnosis and the switching off function is continuously deactivated.

The diagnosis goes off when the press starts up again.

Only active with option: P 35

16.11.99

8502 **Check metal detector**

(Stop diagnosis = red lamps permanently on)

If the option ”S33 check metal detector” is activated and a corresponding metal detector connected, then this unit is also monitored, i.e. the metal detector has its own function control and sends the results of this control to the press.

If the metal detector is not functioning according to its own control, then the press is stopped with the above diagnosis.

The diagnosis goes off when the press starts up again.

16.11.99

8800 **Check LM drive angle**
(Stop diagnosis)

This diagnosis is set and at the same time the drive released when

S the corresponding angle value is not reached on approaching a barrel position

S after positioning, this position cannot be held because of external influence

S drive doesn‘t move properly during the teach–in procedure

The diagnosis goes off when the machine starts.

16.11.99

8802 **Check LM drive length (Stop diagnosis)**

This diagnosis is set and the length drive enabled at the same time, when

S the corresponding length value is not reached on approaching a barrel position

S after positioning, this position cannot be held because of external influence

S the length drive does not move properly during the teach–in procedure

The diagnosis goes off when the machine starts.

16.11.99

8804 **Check upper LM conveyor belt (Stop diagnosis)**

The speed of the conveyor belts is monitored by shaft encoders. If the difference between set and actual speed is greater than allowed, then this diagnosis is set and the conveyor belt is switched off at the same time.

The diagnosis goes off when the machine starts.

16.11.99

8806 **Check lower LM conveyor belt (Stop diagnosis)**

The speed of the conveyor belts is monitored by shaft encoders. If the difference between set and actual speed is greater than allowed, then this diagnosis is set and the upper and lower conveyor belt is switched off at the same time.

The diagnosis goes off when the machine starts.

16.11.99

8808 **Check LM drive height (Stop diagnosis)**

This diagnosis is set and at the same time the height drive enabled, when

– the corresponding height value is not reached on approaching a barrel position

– after positioning, this position cannot be held because of external influence

– the height drive does not move properly during the teach–in procedure

The diagnosis goes off when the machine starts.

16.11.99

8810 **Check LM drive conveyor (Stop diagnosis)**

The conveyor drive (ascending belt or brush conveyor)is monitored by a tachometer generator.

If set and actual speed deviate by more than 5 percent, after one minute this diagnosis is set and the conveyor is switched off.

The diagnosis goes off when the machine starts.

16.11.99

8814 **LM teach–in is enabled (Warning diagnosis)**

The teach–in function can only be enabled and disabled in the setting run in special list T, with the machine at a standstill. The machine can only change into another run when the teach–in function is disabled.

This diagnosis appears when the teach–in is enabled.

When the teach–in is enabled, the inputs at the hand terminal are evaluated by the LM. When the buttons for angle, height and length are pressed, the corresponding drives are moved at constant speed. The condition of the belt direction of rotation is shown by the LEDs in the buttons. When ”set” is pressed, the barrel position and the belt direction of rotation is saved under the displayed barrel number.

The barrel position list is defined continuously from barrel number 1 to the largest entered barrel number. This is why barrel numbers can only be allocated in increasing order. Accordingly, a barrel position from the middle of the list can be changed but not deleted.

Deleting of barrel positions is only possible for the largest defined barrel number. The barrel number is then automatically decreased by 1.

It is possible to select one barrel number larger than the last valid barrel position in order to enter a new barrel position. In this case the display flashes.

A barrel position is selected with the buttons ”1” for single digits and ”10” for tens. To reach all barrel numbers in this way, it is also possible to display the barrel number 0. The 0 in the display flashes to show that this barrel number is not valid. The display of barrel numbers whose position has already been saved is stable (i.e. does not flash).

16.11.99

8816 **LM barrel positions have been changed (Stop diagnosis)**

This diagnosis appears when the current position of the LM can no longer be allocated to a barrel position. This occurs when either a product has been selected which differs from the last product in at least one barrel position, or the teach – in mode has been selected.

The machine cannot be started as long as this diagnosis is set.

In order to reach a clear barrel position again and thus delete this diagnosis, the batch has to be changed, or a barrel position approached directly via the special list T.

16.11.99

8818 **LM barrel position not reached (Stop diagnosis)**

This diagnosis is set when a barrel position could not be approached. The parameter field shows the barrel number which should be approached. In addition, a diagnosis appears which says which drive has not reached its position.

This diagnosis also appears when the LM is no longer at the last approached barrel position after a reset.

The machine cannot be started as long as this diagnosis is set.

In order to reach a clear barrel position again and thus delete this diagnosis, the batch has to be changed, or a barrel position approached directly via the special list T.

16.11.99

8820 **LM Reset cause of the LM computer (Diagnosis display = no special lamp signal)**

If the LM computer had a reset, diagnosis 1235 ”LM had reset” appears. The cause of this reset is shown in this diagnosis. In the field where normally the index number appears, this diagnosis includes a line which describes the reset cause.

Index	:	Meaning
3	:	A process has been interrupted
5	:	The IC has requested a reset

16.11.99

8822 **LM diagnosis buffer overflow (Stop diagnosis)**

When there is high load on the IC interface, it is possible that the IC refuses to take more data for a while. To avoid losing any diagnoses, the LM computer has a diagnosis buffer.

If the IC does not accept data for a longer time, e.g. because the interface cable is interrupted, then the capacity of the buffer can be exceeded. After restoring the connection, this diagnosis appears to show that diagnosis could not be transferred.

It ensures that after restoring the connection, the current status of all diagnoses is displayed.

16.11.99

8824 **LM barrel position is approached (Warning diagnosis)**

This diagnosis appears during positioning after a batch change or during a direct barrel approach command.

16.11.99

8826 **LM invalid barrel position (Warning diagnosis)**

This diagnosis appears when the system tries to approach an undefined barrel position via the direct barrel selection in special list T.

16.11.99

8828 **LM Reference fault angle drive (Stop diagnosis)**

On the rotary table for the angle motor, a cam is integrated over a semi–circle. If the reference switch is open (LED ”limit switch angle” is off), then the motor initially continues to move until the switch closes (LED on). Then, or if the reference switch was closed before approaching the reference marks, the motor moves to the position ”limit switch open”. From this position, the motor then moves slowly in the opposite direction until the limit switch switches.

The position at which the limit switch switches is the reference point. At this point, the position potentiometer must supply a voltage of 5.0 Volt +/– 0.2 Volt. If this is not the case, then this diagnosis appears.

The diagnosis goes off again when the reference mark is reached.

16.11.99

8830 **LM reference fault length drive (Stop diagnosis)**

The length drive is initially brought to the set value 0 V. If the drive does not reach this value, then this diagnosis appears together with diagnosis 8802 ”check drive length”. The length drive is then brought to the set value 10 V. If the drive does not reach this value, then again this diagnosis appears together with the diagnosis 8802 ”check drive length”.

If both these positions could be approached, then the length drive is free of faults and the diagnosis goes off again. The length drive then moves back to its idle position (set value 0 V).

16.11.99

8832 **LM reference fault height drive (Stop diagnosis)**

The height drive is brought to maximum height (until the limit switch is active). The actual value must then be at 7.6 Volt +/– 0.2 Volt.

If the value is outside this range, then this diagnosis appears.

This diagnosis only goes off again when the value is within this range.

Note:

The enable button must be pressed to move the height drive. If the enable button is not pressed, then this diagnosis also appears after a minute.

16.11.99

8834 **LM barrel production reached (Stop diagnosis)**

If the number of barrels stated in parameter 72 "barrel production pre–selection" is full, then the press switches off with this diagnosis. At the end of the post–running time entered in parameter 132, the LM is also switched off.

The LM then moves on to the next barrel position.

Parameter 72 "barrel production pre–selection" is only evaluated when the machine starts. Any changes to this parameter while the machine is running are not taken into account until the next start.

Barrel production counting starts from the beginning, when

S parameter 72 'barrel production" has been changed and the machine is started again

S this diagnosis appears and the machine is started again.

The diagnosis goes off when the machine starts.

16.11.99

8836 **LM reference marks are approached (Warning diagnosis)**

This diagnosis is set when ”approaching reference marks” is selected in special list T.

The procedure for approaching the reference marks is described in diagnosis 8828 ”reference fault angle drive”, 8830 ”reference fault length drive” and 8832 ”reference fault height drive”.

The diagnosis goes off either when the reference marks are reached or a fault is found.

16.11.99

8838 **LM reference marks approached (Warning diagnosis)**

This diagnosis appears after the reference marks have been successfully approached. The procedure for approaching the reference marks is described in diagnosis 8828 ”reference fault angle drive”, 8830 ”reference fault length drive” and 8832 ”reference fault height drive”.

This diagnosis goes off again when the machine starts.

16.11.99

8840 **Press LM enable button height drive (Stop diagnosis)**

For safety reasons, the height adjustment of the LM is only adjusted when the enable button on the LM has been pressed.

If a barrel position is to be approached at which the current height setting has to be changed, then the press stops with this diagnosis. The positioning of the other two positioning drives is finished. In addition to this diagnosis, the lamp in the enable button for height adjustment is switched on.

If the enable button is now pressed, the height adjustment moves until the required height is reached. The lamp in the enable button now goes off.

If the enable button is released before reaching the required height, then the height adjustment stops and moves back a short distance in the opposite direction.

16.11.99

8842 **LM Tablet congestion (Stop diagnosis)**

16.11.99

8846 **LM vacuum monitoring (Stop diagnosis)**

16.11.99

8848 **LM reference marks must be approached (Stop diagnosis)**

This diagnosis appears if the reference marks of the LM could not be successfully approached.

This diagnosis goes off again at the next command ”approach reference marks”.

It is not possible to approach a barrel or start the machine as long as this diagnosis is set.

16.11.99