

MACHINE PARAMETERS MANUAL

DA-65 (V7)
DA-69 (V7)
DA-68PL (V7)
DA on Windows (V1)

- Communication information

The communication information indicates the status of the serial link. The three possible states are:

- Idle: there is no communication
- Busy: communication takes place
- Error: an error has been detected.

The following errors are reported:

- parity error
- overrun error
- framing error

The occurrence of one of these errors is indicated by a number which is displayed on the service row. A combination is also possible. The error numbers are:

16 = parity error

32 = overrun error

64 = framing error

When a combination of errors occur the sum of the error numbers is displayed.

Example:

When a parity and an overrun error occur at the same time the error number will be $16 + 32 = 48$.

code	parity	overrun	framing
16	X		
32		X	
48	X	X	
64			X
80	X		X
96		X	X
112	X	X	X

If you have an error message in the service row, check first whether the specification parameters for serial communication are equally programmed in the control and in the connected computer.

Parameter 2: Y-max

Range : 0.00 - 9999.99
Default : 150.00
Units : mm

Function

Maximal Y-axis value

Description

The maximum position the beam can be moved to. This value is used as a soft limit. When the start button on the control is pressed, the control checks all Y-axis parameters, which are programmed or computed. If a programmed or computed Y-axis value is greater than Y-max the value is limited at the Y-max value and the following error message appears on the screen:

**** Y-axis >>limit ****

The following causes for this error message are possible:

- programmed or computed bending position > Y-max
- programmed or computed mute point > Y-max
- computed clamping point > Y-max

Parameter 3: **Y-min**

Range : 0.00-9999.99
Default : 10.00
Units : mm

Function

Minimal Y-axis value

Description

The minimum position the beam can be moved to. This value is used as a soft limit. When the start button on the control is pressed the control checks all Y-axis parameters, which are programmed or computed. If a programmed or computed Y-axis value is smaller than Y-min the value is limited at the Y-min value and the following error message appears on the screen.

**** Y-axis << limit ****

There are the following causes possible for this error message:

- programmed or computed bending position < Y-min
- programmed or computed mute point < Y-min
- computed clamping point < Y-min

Note

Make sure that the beam can reach this minimum value for the Y-axis. For example, when the beam is in the mechanical top dead centre and the Y-axis value is 5 mm, Y-min must be bigger than 5 mm.

Parameter 4: Y-direction +/- (1/0)

Range : 0-1
Default : 1
Units : -

Function

Y-axis counting direction

Description

When you have programmed '1', the Y-axis value on the user screen counts up when the beam closes. When you have programmed '0', the Y-axis value on the user screen counts down when the beam closes.

Press the key  to select the required setting.

Note

The definition of all the Y-axis machine parameters such as 'Y-max' and 'Y-min' is always in the count up direction.

Example

Y-max = 150.00 mm

Y-min = 10.00 mm

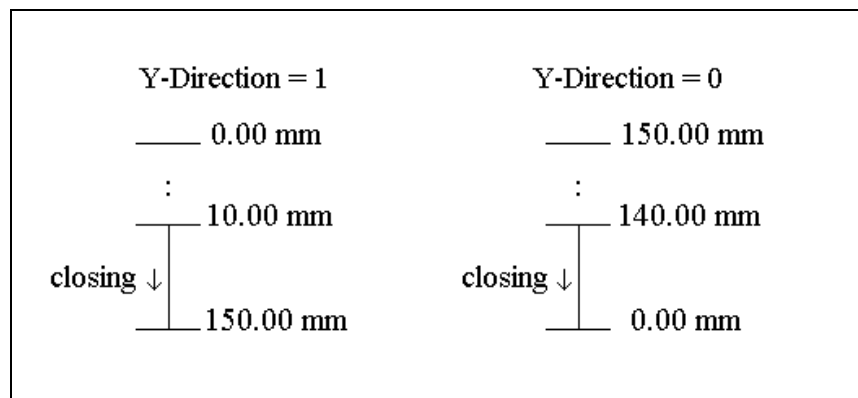


Figure 4.a

Parameter 5: Linear Scale Ref. left (Y1)

Range : 0.00-9999.99
Default : 25.00
Units : mm

Function

Y-axis left side linear scale reference position and parallelism adjustment.

Description

This value is displayed on the screen when the reference on the linear scale is passed. When the reference marker on the linear scale is passed, a reference impulse is given to the electronics. (To see left and right side separately switch service row on).

Note

This value must be greater than the mechanical travel distance on the scale from reference point position to the scale end. This travel distance must also be greater than the mechanical travel of the cylinder from reference point position to the upper dead point mechanical in the cylinder. Make sure that when the cylinder is on the mechanical upper dead stop the Y-axis value read-out is between 5 and 10 mm.

Parameter 6: Linear Scale Ref. right (Y2)

Range : 0.00-9999.99

Default : 25.00

Units : mm

Function

Y-axis right side linear scale reference position and parallelism adjustment.

Description

See description 'Linear scale Ref.left'.

Parameter 7: Tool Reference

Range : 0.00-9999.99
Default : 320.00
Units : mm

Function

The reference height for the computation of the Y-axis bend position in case you have selected angle programming. This value is used in the computation of the bending depth, mute point and clamping point.

Description

Maximal opening of the machine measured between beam and table.

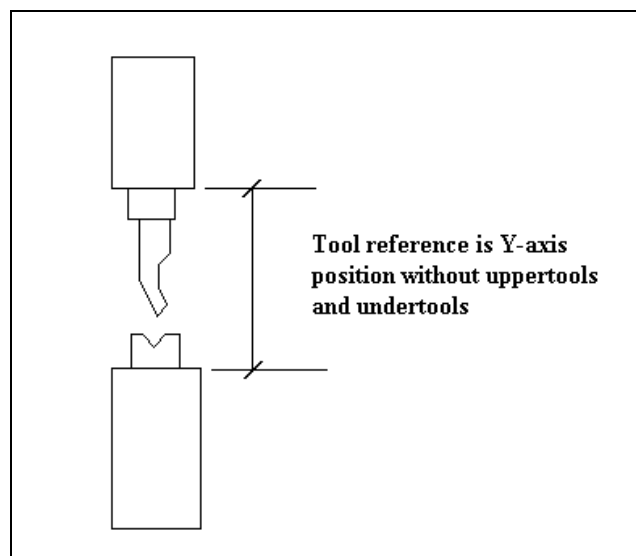


Figure 7.a

Parameter TR: Tool Reference correction

Range : 0.00-9.99
Default : 0.00
Units : mm

Function

A correction of the Tool Reference value for head mounted punches.

Description

The control can make a distinction between 'head mounted' punches and 'shoulder mounted' punches.

In case of a shoulder mounted punch (default situation), the control uses the Tool reference and the Tool height to compute the correct Y-axis position. Since the Tool height is measured from the punch' shoulder, this leads to accurate positioning.

In case of head mounted punches, the punch' shoulder might not correspond with the lower edge of the pressbeam. In that case, the position of the Y-axis is no longer accurate.

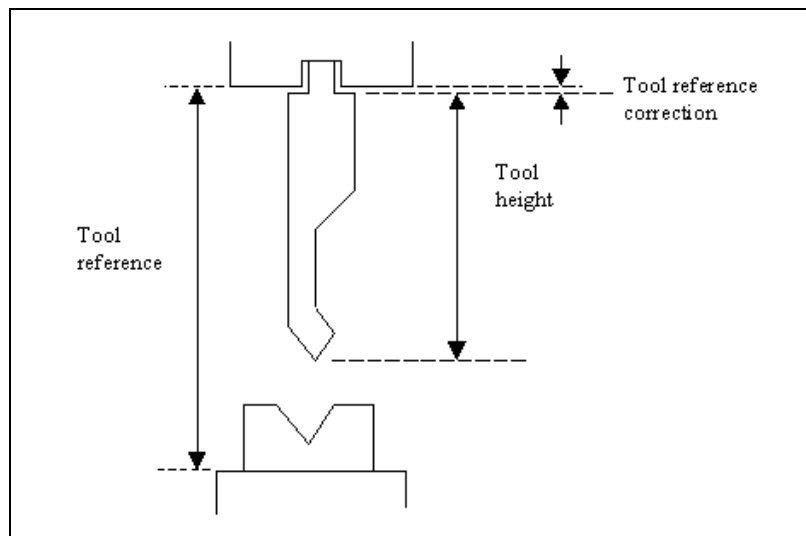


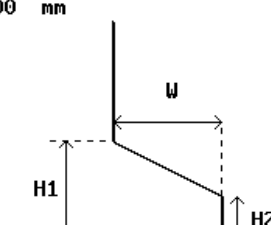
Figure 7.b

In such case, a correction of the Tool Reference value can be programmed.

Parameter TR: Tool Reference correction (continued)

The Tool reference correction is only taken into account, when a head mounted punch is used in a bend program. Otherwise, it is ignored. The type of punch can be programmed at the punch parameters in programming mode:

PUNCHES		No : 5
		Code: REF PUNCH-0105/DLA
CODE.....		C= REF PUNCH-0105/DLA
RESISTANCE.....	R=	51.23 kN/mm
LENGTH.....	L=	453 mm
Z POSITION.....	Z=	128 mm
RADIUS.....	RA=	1.56 mm
FLATTENING HEIGHT.....	FH=	175.00 mm
SUPPORT TYPE SHOULDER/HEAD 0/1....	ST=	0
HEIGHT 1.....	H1=	20.0 mm
HEIGHT 2.....	H2=	15.0 mm
WIDTH.....	W=	15.0 mm



C=	REF PUNCH-0105/DLA	7.2
	alphanum.	

Figure 7.c

0 = shoulder mounted (default)

1 = head mounted

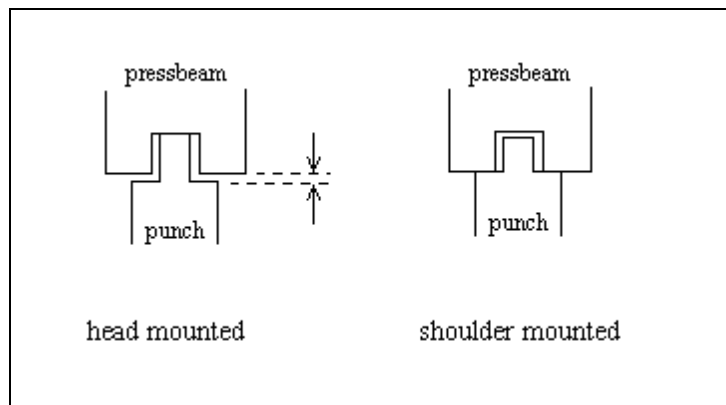


Figure 7.d

Parameter 8: Linear scale direction Y1 (0/1)

Range : 0-1
Default : 0
Units : -

Function

To change the counting direction of the linear scale encoder pulses of Y1.

Description

Generally the position counting of Y1 should be upcounting when the beam is moving down. With this parameter the counting direction can be inverted to have it correct.

Press the key  to select the required setting.

Parameter 9: Linear scale direction Y2 (0/1)

Range : 0-1
Default : 0
Units : -

Function

To change the counting direction of the linear scale encoder pulses of Y2.

Description

Generally the position counting of Y2 should be upcounting when the beam is moving down. With this parameter the counting direction can be inversed to have it correct.

Press the key  to select the required setting.

Parameter 10: Tandem 1/0

Range : 0-2
Default : 0
Units : -

Function

You have to program this parameter '1', if the tandem option has been installed. When you program this parameter to '2', you can use the tandem input to stop the beam for robot-interfacing.

Description

There are two possible values:

1. One of the outputs of the optional Tandem card, type DBT-01 which has to be used in case of 'tandem', must be connected to the tandem input of the control.
T-input active means that there is no Y-axis speed control. Program this parameter '0' if tandem option is not installed. When you want to apply the tandem function, please ask for our general Tandem description.
2. The same 'tandem' T-input can be used when you have your machine in a robot application.
In this case the beam will be stopped in the pressing phase as long as the T-input is active and will continue the pressing movement when the T-input is no longer active.
Programming this parameter to the value 2 will create the clamp output to be active as well on the clamp position as well on the bending position, after the holding time has been elapsed. With help of this clamp-output signal you can create a T-input signal to keep the beam at the bend position till the robot handling has been finished.
When you want to apply the robot interfacing, please ask for our general robot interfacing description.

Press the key  to select the required setting.

Parameter 11: Parallel switch 1/0

Range : 0-1
Default : 0
Units : -

Function

Parallelism indication switch mounted to use before Y-axis references are passed.

Description

You have to program '1', if you want to use the parallelism switch option. The parallelism switch must be connected to the '='-input of the control. With this input the control has an indication of the parallelism of the upperbeam. When this input is active (switch closed) the left side cylinder is higher than the rightside cylinder. When this input is not active (switch opened) the right side cylinder is higher than the left side cylinder.

When the control gets a fast opening (\uparrow) or fast closing ($\downarrow\downarrow$) command the first time after power on, only one cylinder moves until the '='-input changes from open to closed or vice versa. In this situation the beam is parallel and both cylinders will move to pass the Y-axis references.

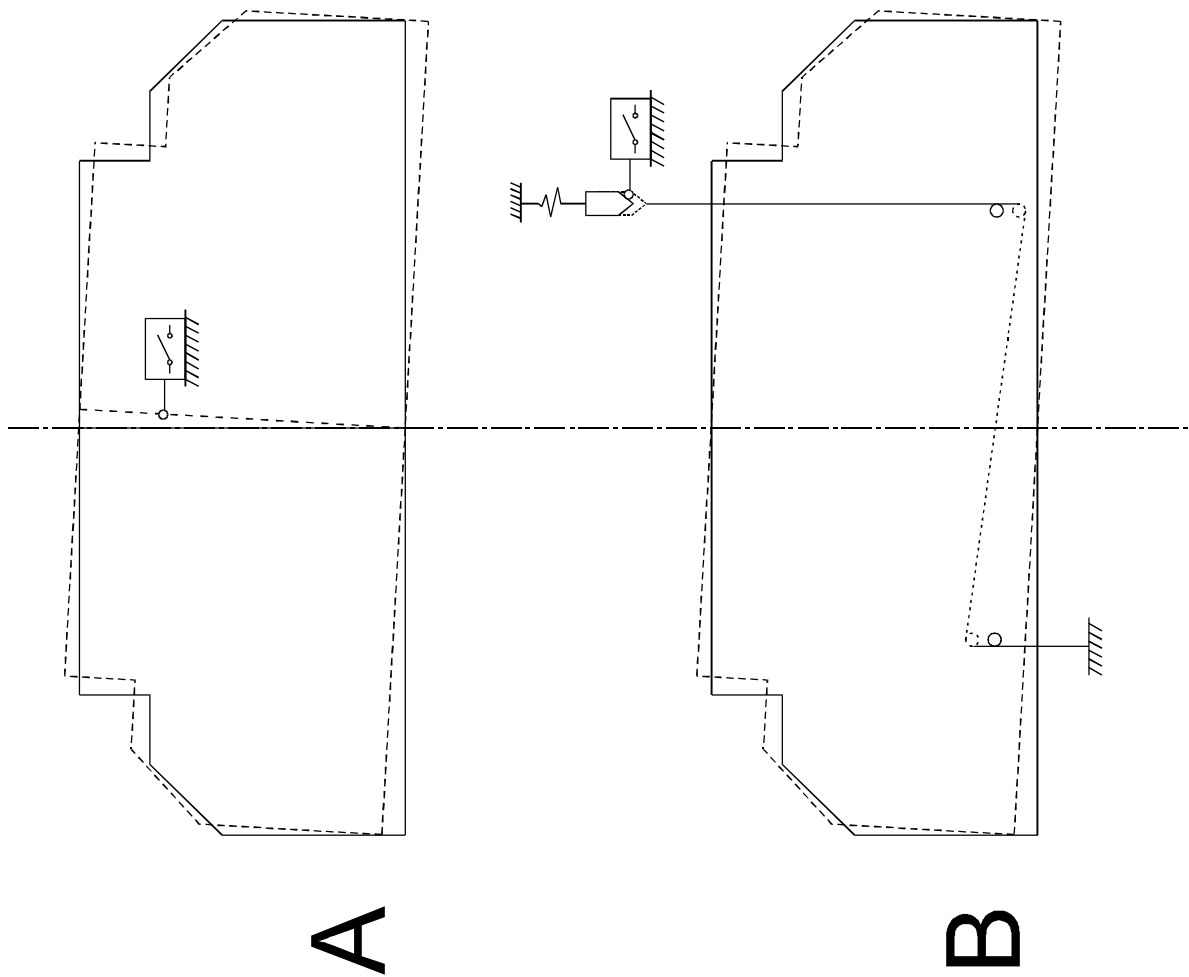
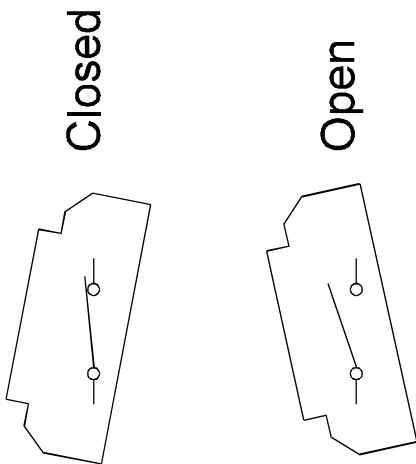
When the parallel switch is not mounted (program 0) the control will not use this input before the references are passed.

Press the key  to select the required setting.

After giving a fast opening or fast closing command the relative parallelism of the left side and the right side cylinder will be maintained until references of both linear scales are passed.

See also included drawing.

FIGURE 1



Note	Redrawn	Date		Delem Luchthavenweg 42, 5657 EB Eindhoven, the NETHERLANDS	
Description					
Note	Redrawn	Date		Mounting example of Parallelism Indication Switch	
Description					
Measures in mm, unless otherwise specified	Drawn MI	Date 22-01-1999	Format A4	Number 9056-901	Issue -
			No unauthorized copying allowed Scale		

Parameter 12: **Max. Parallelism**

Range : 0.00-50.00
Default : 2.00
Units : mm

Function

Total maximum allowed parallelism of the beam.

Description

The parallelism is the difference between the left hand cylinder (Y1) and the right hand cylinder (Y2). For the controls there are two parameters that influence the beam parallelism:

1. Parallelism programmable under the programming parameters. This value has effect over the entire stroke of the beam.
2. Parallelism programmable in data preparation, data editing and manual mode. This value is taken into account when the beam reaches the clamping point and stays active until the opening command (↑) becomes active.

The total parallelism is the sum of the values described under 1 and 2. When in automatic mode a total parallelism that is greater than the max. parallelism is detected the control goes to stop and the following warning is displayed on the screen:

**** Parallelism > max. parallelism ****

Parameter 13: Y-opening default

Range : -9999.9 - + 9999.9
Default : 20.0
Units : mm

Function

Default Y-axis opening value.

Description

The value programmed here is used as initial value for the parameter 'Y-axis opening' in the Data Preparation menu of the programming mode.

Parameter 14: **Braking time max**

Range : 0-200

Default : 0

Units : 5 ms

Function

Maximal allowed braking time of the beam.

Description

Every time the control is switched on, the braking time of the beam can be measured. This measurement is initiated the first time a closing command (↓↓) becomes active after power on. The beam starts moving in the closing direction. The control goes to stop 4 mm after both references have been passed and the CNC start output goes low.

This means that the beam must stop. The CNC start output should be connected in such a way that the fast closing command will be switched off and the height retaining valves are closed. When the 'braking time max' has elapsed the speed of the beam must be 2 mm/s or less.

When the speed of the beam is lower than 2mm/s within the allowed time the following message appears on the screen:

**** BRAKING DIST ok, press start to cont. ****

After the start button is pressed again the bending can be continued.

When the beam does not stop within the allowed time the following message appears on the screen:

**** BRAKING DIST too large, cannot continue ****

In this situation it is not possible to continue with bending. If you try to press the start button again the following message appears on the screen:

**** not possible, BRAKING DIST too large ****

Note:

When this parameter is programmed zero the braking distance measurement is disabled.

Parameter MP: Mute programmable per bend step 1/0


Range : 0-1
Default : 0
Units : -

Function

Enable or disable the mute parameter for the operator in the data edit mode.

Description

In the standard situation (OFF), the mute point for each bend is calculated from the mute distance of the die. In some situations, it is desired that the operator can change the mute point for a bend. When this parameter is switched ON, the mute point can be changed for each individual bend of a program.

Press the key  to select the required setting.

Parameter 15: Calibrate valves 1/0

Range : 0-1
Default : 0
Units : -

Function

To adjust the valve offset of the servo valves in the manual mode (not for Hoerbiger hydraulics application).

Description

For valve types that use the $\pm 10V$ output of the DM02, there are two ways to adjust the offset:

- In the diagnostic mode (without using this parameter).
It is possible to adjust the offset of these valves on the valve deflection page in the DM02 module test menu. If the cursor on the screen is set at one of the offsets, it can be adjusted using the handwheel. The range is between -127 and +127. This corresponds with an offset in the range between -600 and +600 mV.
- In the manual mode.
It is also possible to adjust the position of the beam in manual mode with the handwheel. The best way to do this is during the dwell time (status 4) and by programming a long dwell time. This adjustment mode must be enabled with this machine parameter.

When you have programmed this parameter to '1', the softkey 'Y1/Y2 cal. select' appears in the manual mode. With this softkey you select Y1 or Y2 for offset adjustment. The selected side is highlighted on the service row. The selected side can now be adjusted with the handwheel. The corresponding valve offset will be memorized in the DM02 when the other side is selected or on exit of the manual mode.

After the offset adjustment has been finished, this parameter must be reset to zero again.

Press the key  to select the required setting.

Note 1

Offset adjustment for Hoerbiger valves must always be adjusted in the diagnostic program. They cannot be adjusted with the manual mode.

Parameter 16 - 19: **Not used**

Parameter 20: **Relaxation Stiffness**

Range : 0.000-99.900
Default : 0.300
Units : $\mu\text{m/kN}$

Function

Stiffness of frame used to compute decompression.

Description

The stiffness of the frame is used to compute the decompression distance. This value will be multiplied with computed force to obtain decompression distance.

Parameter 21: **Stiffness of frame**

Range : 0.0-100.0
Default : 0.0
Units : %

Function

Stiffness of frame, used for Y-axis depth computation.

Description

When you program bending angles, the corresponding bending depth is computed automatically. Stiffness of frame is used to compute a correction for this bending depth due to the deflection of the frame.

The deflection compensation arm will not fully compensate the deflection of the side frame in order to compensate the Y-axis bend position. Bending the same metal with length of 0,5 meter must have the same angle when bending it with a length of 1 meter or longer.

The difference between the two bends is the tonnage. With 1 meter length the frame will deflect more because it requires more tonnage when bending 0,5 meter.

The value programmed for this parameter must be the deflection of the side frame which is not compensated by the compensation arm. This value is programmed as a percentage of the value programmed for the machine parameter 'Relaxation Stiffness'.


Parameter 22: Calibration 1/0

Range : 0-1
Default : 0
Units : -

Function

Pressure valve calibration.

Description

Program '1' if you want to calibrate proportional pressure valve control. Press the key  to select the required setting. The units at the force parameter in manual mode will be in points from 0 to 255 max. in stead of tons. (0 = 0 mA, 255 = 800 mA)

Calibration procedure:

1. Set parameter to '1';
2. Leave the machine parameter menu;
3. Go to the manual mode;
4. Program e.g. 200 points at the tonnage parameter;
5. Select bottoming;
6. Mount pressure gauge on hydraulic block (pump pressure);
7. Programm Dwell time = 5 s;
8. Perform a working stroke with the press. The tools are now pressed together (punch in die) (Note: Only use punch and die which may work on max. pressure)
9. When tools are pressed together read pressure gauge. In case the pressure is not sufficient for max. tonnage, reprogram DA-output (max. 255) at tonnage parameter. Repeat until your max. tonnage is reached. Remember output value. The value must be programmed at machine parameter 'output- max'.
10. Program a small value at tonnage parameter, e.g. 30 points. Now find min.value at which the beam begins to move in the pressing mode. Make note of this minimum value. This value must be programmed at machine parameter 'output-min'.
11. Select again the machine parameters menu.
12. Now you must program at machine parameters 'Force max.' and 'Force min.' the maximum and minimum tonnage of your press which corresponds with the force units (0-255) at machineparameters 'output -max' and 'output- min'.

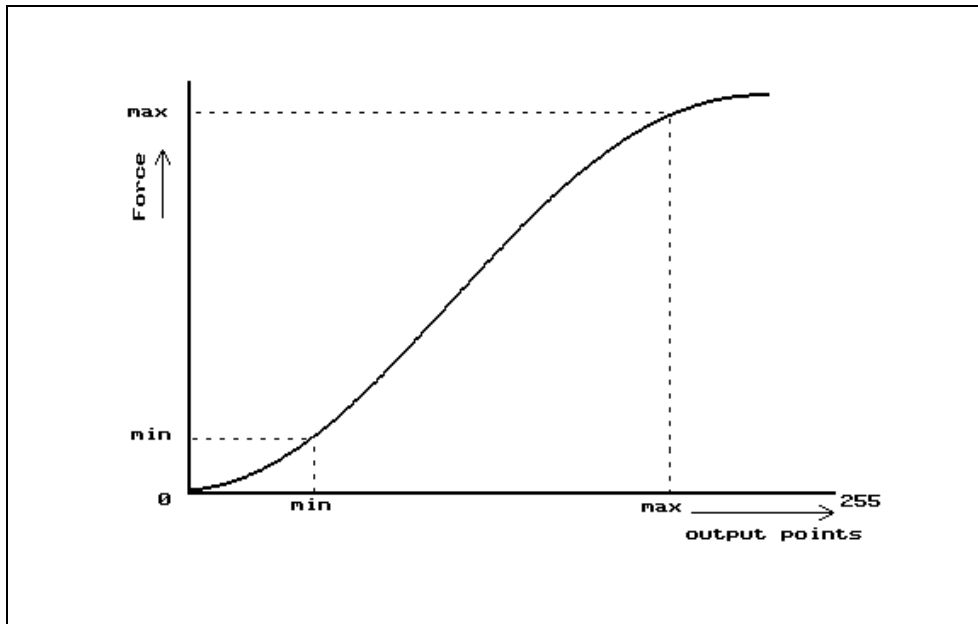


Figure 22.a

Note

The mechanical adjustment of the pressure valve has to be done before this calibration procedure.

Parameter 23: **Force max.**

Range : 0-32000
Default : 1100
Units : kN

Function

Maximal tonnage of press brake

Description

Maximal tonnage of the press brake is used to compute the pressure valve output deflection. It is also used to check the programmed and computed values for the force. If the computed force is greater than force max. the following error message will be displayed on the screen.

** computed force > force max. **

The message can also appear when the decompression distance is computed because the control needs to compute the force before computing the decompression. When the start button is pressed in manual mode or automatic mode, and the programmed force > force max then the following error message will appear on the screen.

** programmed force > force max. **

The value programmed for force is limited at force max. See also calibration procedure described with machine parameter calibration (parameter 22).

Parameter 24: **Force min.**

Range : 0-32000
Default : 100
Units : kN

Function

Minimal tonnage of press brake.

Description

Minimal tonnage of the press brake is used to compute the pressure valve output deflection. It is also used to check the programmed force value. When the start button is pressed and the programmed force is less than force min, the force is limited at force min. See also calibration procedure described with machine parameter calibration.

Parameter FM: **Force Middle**

Range : 0 - 32000
Default : ____
Units : kN

Pressure valve calibration enhancement

When the relation between the output deflection and the pressure is linear then you only have to program force max. and force min. In case the relation between the output deflection and the pressure is not linear you can program force middle.

The default value for this middle parameter is '____', meaning that this parameter is not active.

Parameter 25: **Output max.**

Range : 0-255
Default : 255
Units : DA-points

Function

Pressure valve deflection for max. force.

Description

Output deflection for proportional pressure valve in DA-points to give max. force. There are two ranges of pressure valves:

- 800 mA. These valves can be programmed to max. 136 DA-points.
- 1500 mA. These valves can be programmed to max. 255 DA-points.

See also calibration procedure with machine parameter Calibration.

Parameter 26: **Output min.**

Range : 0-255
Default : 48
Units : DA-points

Function

Pressure valve deflection for minimal force.

Description

Output deflection for proportional pressure valve in DA-points to give min.force.
There are two ranges of pressure valves:

- 800 mA. These valves can be programmed to max 136 DA-points.
- 1500 mA. These valves can be programmed to max 255 DA-points.

See also calibration procedure with machine parameter Calibration.

Parameter OM: **Output middle**

Range : 0 - 255
Default : ____
Units : DA-points

Pressure valve calibration enhancement

When the relation between the output deflection and the pressure is linear then you only have to program output max. and output min. In case the relation between the output deflection and the pressure is not linear you can program output middle.

The default value for this middle parameter is '____', meaning that this parameter is not active.

Parameter 27: Pressure ramp

Range : 0 - 255
Default : 255
Units : DA-points

Function

To program a ramp with which you control the pressure output.

Description

It is possible to program a ramp with which the pressure output will be activated. A lower value will give a large ramp. This parameter is activated at every pressure change.

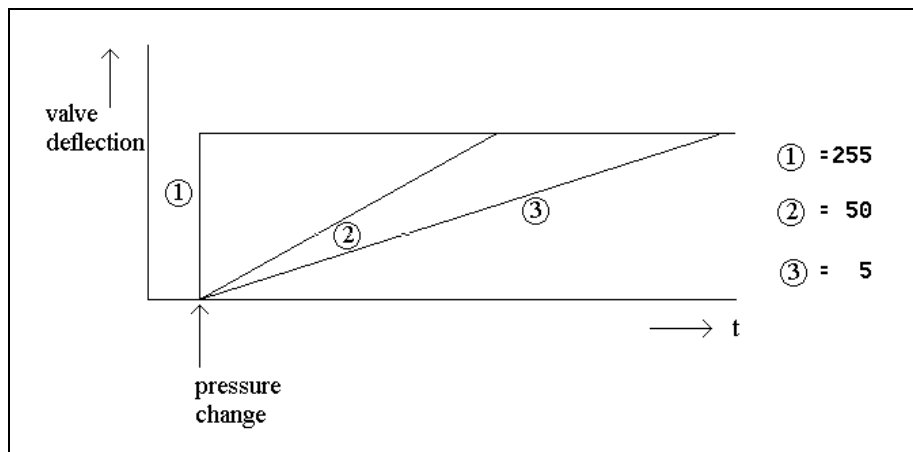


Figure 27.1 Low-high pressure change

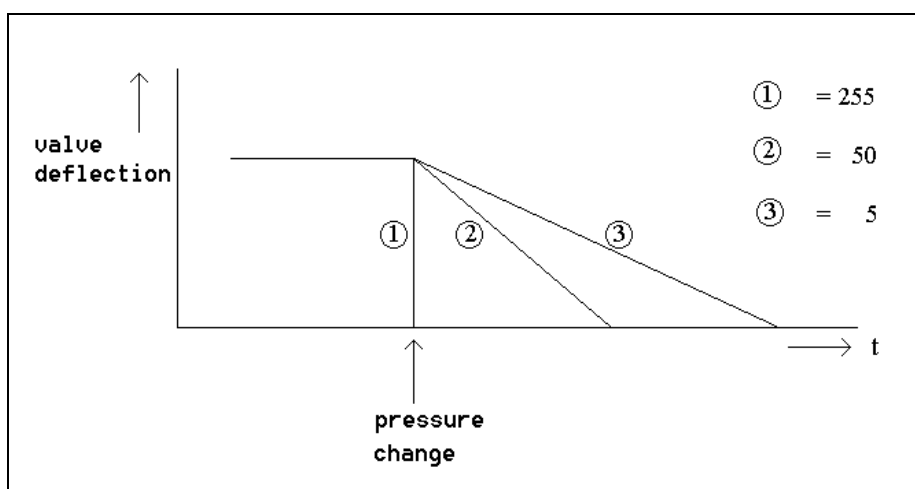


Figure 27.2 High-low pressure change

Parameter 28: **Not used**

Parameter 29: **Not used**

Parameter 30: Closing speed

Range : 0 - 250

Default : 80

Units : mm /s

Function

Fast closing speed

Description

Y-axis speed during fast closing (status = 2, see service row).

The control regulates the closing speed to the value of this parameter.

Parameter 31: Closing speed incr.

Range : 0.0 - 200.0
Default : 100.0
Units : Steps per 5ms.

Function

Y-axis closing acceleration

Description

Acceleration of the Y-axis during closing.

When the beam is in the upper dead point, it accelerates with this value when the closing command becomes active (status = 2, see "service row") until the value "closing speed" is reached.

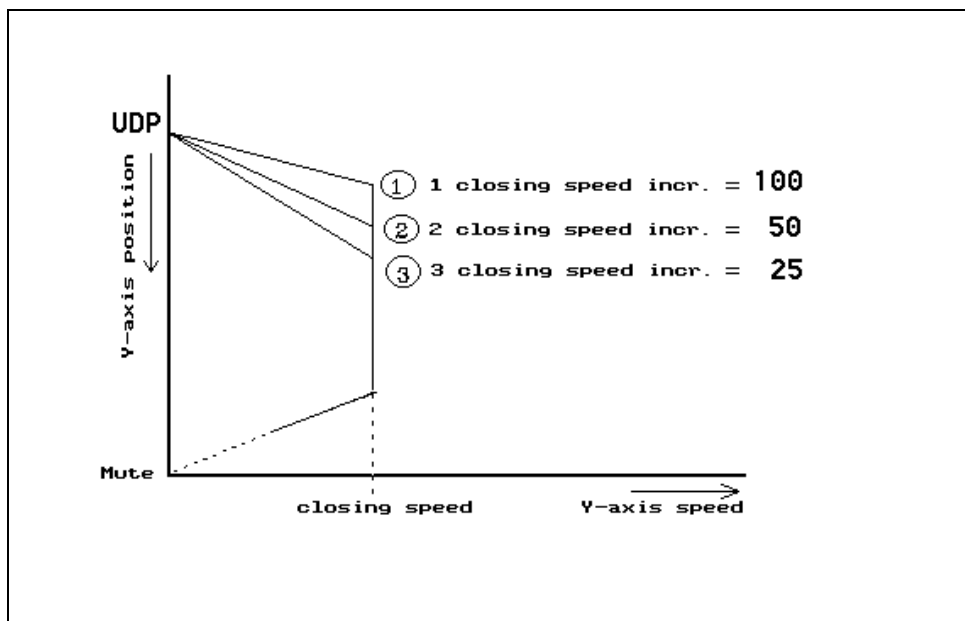


Figure 31.a

Parameter 32: Closing ramp offset

Range : -9.99 + 9.99
Default : 2.50
Units : mm

Function

Offset to adjust beam at mute position.

Description

When the beam approaches the mute point it starts braking. The braking ramp is computed by the control. With the parameter "closing ramp offset" the start of the braking ramp can be set relative to the mute position.

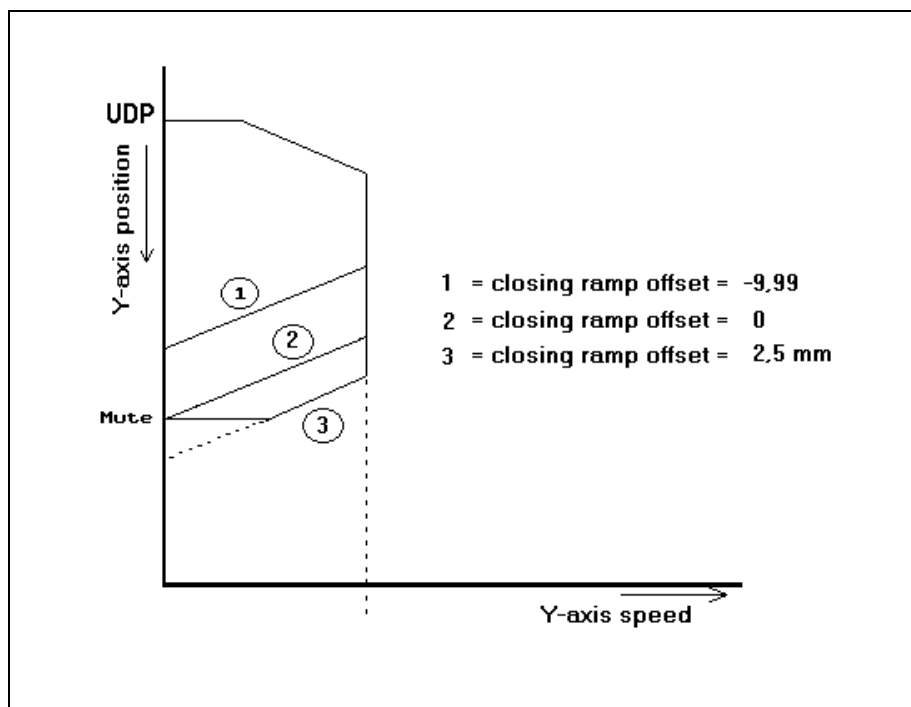


Figure 32.a

Parameter 33: Del. before closing

Range : 0-200
Default : 0
Units : 5 ms

Function

Synchronised start of beam speed.

Description

When the fast closing command (↓↓) becomes active, the proportional valves will not be opened until this delay time has elapsed.

This time is needed to open the height retaining units before the proportional valves are opened.

Parameter 34: **Opening speed**

Range : 0 - 250

Default : 80

Units : mm /s

Function

Fast opening speed.

Description

Y-axis speed during fast opening (status=6, see service row).

The control regulates the beam speed during opening of the beam.

Parameter 35: Opening ramp offset

Range : - 9.99 - +9.99

Default : - 1.50

Units : mm

Function

Offset to adjust stop position in UDP.

Description

When the beam is opening with fast speed (status = 6, service row) it starts braking when it approaches the upper dead point. The braking ramp is computed by the control. With this offset the start of the braking ramp can be set relative to the UDP.

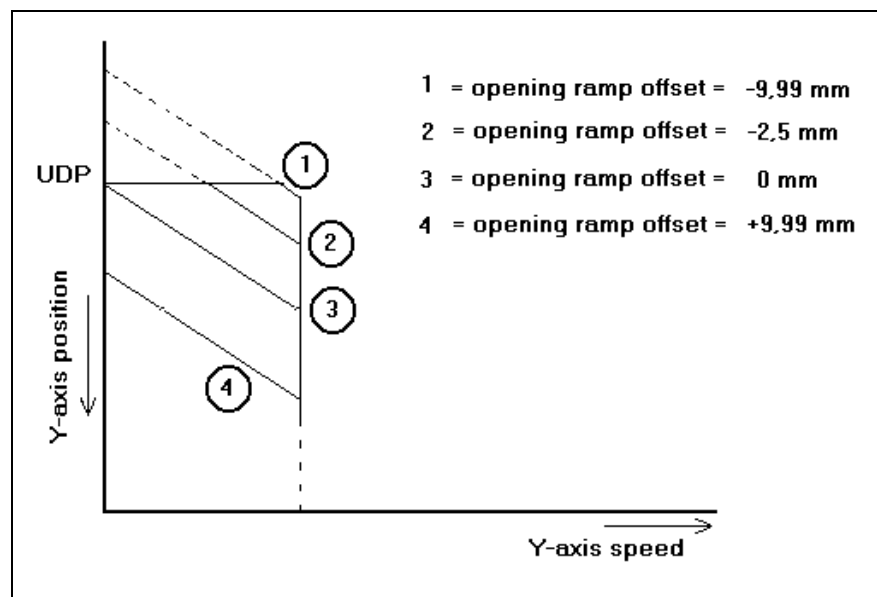


Figure 35.a

Parameter 36: **Del. before opening**

Range : 0 - 200

Default : 10

Units : 5 ms

Function

Synchronised start of beam speed

Description

When the opening command (\uparrow) becomes active the proportional valves are not opened until this time delay has elapsed. During this time delay the suction valves must be opened and/or high retaining valves must be closed.

Parameter 37: **Max. pressing speed**

Range : 0.0 - 30.0

Default : 30.0

Units : mm/s

Function

Maximum pressing speed programmable by the operator.

Description

Maximum programmable pressing speed in data preparation, data editing and manual mode.

Parameter 38: **Delay before pressing**

Range : 0 - 200

Default : 40

Units : 5 ms

Function

Synchronised start of press speed.

Description

When the beam is at the mute point and the pressing command (↓) becomes active the proportional valves are not opened until this time delay has elapsed. During this delay the suction valves must be closed.

Parameter 39: Delay before pressing force

Range : 0 - 9999
Default : 0
Units : kN

Function

Pressure during delay before pressing.

Description

During the time delay before pressing the proportional valves are closed (See machine parameter delay before pressing). The pressure valve has a deflection during this time delay which corresponds with the force programmed here.

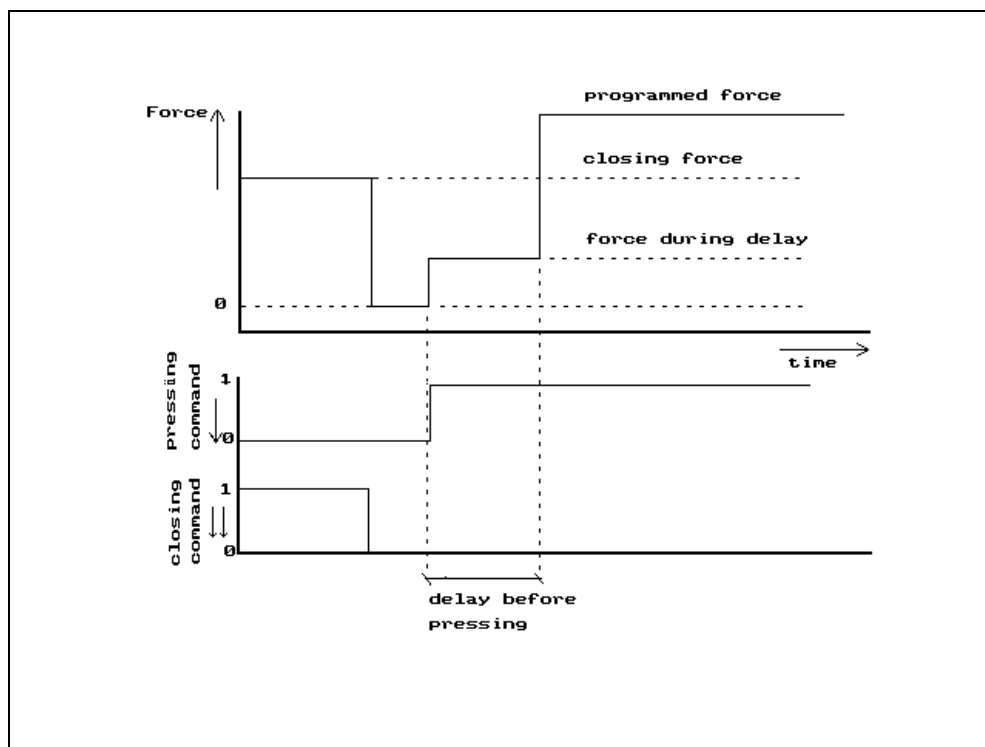


Figure 39.a

Parameter 40 - 41: **Not used**

Parameter 42: Y-ref search speed

Range : 10.0 - 250.0
Default : 125.0
Units : mm/s

Function

Setting of the Y-axis speed during reference search.

Description

This is the speed with which the beam is controlled in the upward direction during the reference search cycle.

When the reference search cycle of the Y-axis is started, the beam is controlled in the upward direction with the speed which is programmed here. The sequence of the complete reference cycle depends on the position of the beam:

- if the beam was positioned below the reference point, the Y-axis will reach the reference point and set the position;
- if the beam was positioned above the reference point, the beam will also move upwards with the programmed speed. When the beam reaches the mechanical upper dead point, the control will detect after a short period that there is no movement and will stop the movement. As soon as a closing command is generated, the beam is controlled downwards with closing speed (parameter 30). The beam should now find reference.

Parameter 43 - 45: **Not used**

Parameter 46: Closing brake ramp trim

Range : -2.0 - +2.0
Default : 0.0
Units : -

Function

To adjust the ramp to brake the beam from the fast closing phase to mute.

Description

For large machines it is sometimes desired to adjust (or trim) the brake ramp during closing.

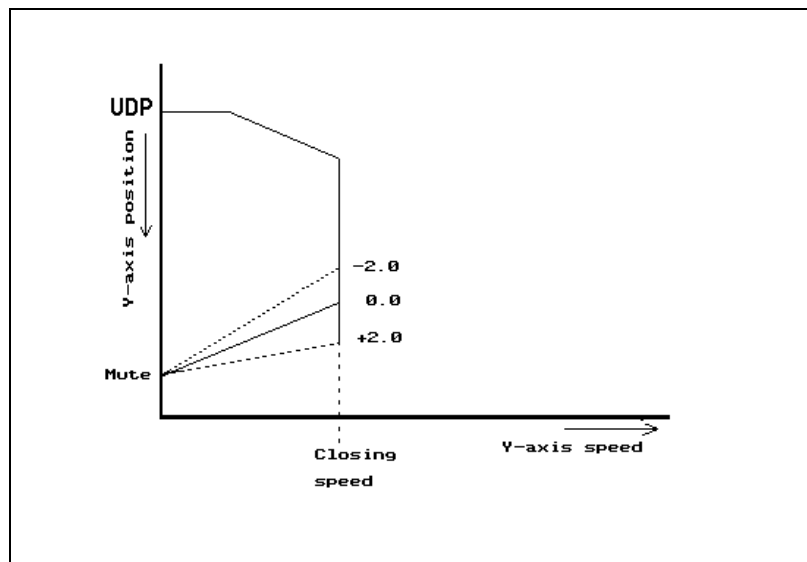


Figure 46.a

The recommended way to adjust this parameter

- Program the closing speed lower or equal to the hydraulic closing speed.
- Program machine parameter 32 (closing ramp offset) to 0 (zero).
- Set the machine to 'adjust' mode (hand input active).
- Adjust parameter 46 until you get a smooth stop of the beam at the mute point.
- Program then machineparameter 32 to a value that the beam stops about 0.5 - 1 mm lower than the programmed mute position.

Note

This parameter is related to machine parameter 47 (= gain trim for closing movement), increasing this parameter will also result in steeper braking and vice versa.

Parameter 47: Closing gain trim

Range : -1.0 - +1.0
Default : 0.0
Units : -

Function

To adjust the gain in fast closing phase of the beam.

Description

It is sometimes desired to adjust (trim) the preset gain of the pressbrake movement during the closing phase. Especially when you have some vibrations in the closing phase, you can decrease the gain.

Programming 0.0 will give the preset standard value for the gain.

Parameter 48: **Opening gain trim**

Range : -1.0 - +1.0
Default : 0.0
Units : -

Function

To adjust the gain in the opening phase of the beam.

Description

It is sometimes desired to adjust (trim) the preset gain of the pressbrake movement during the opening phase. Especially when you have some vibrations in the opening phase you can decrease the gain.

Programming 0.0 will give the preset standard value for the gain.

Parameter 49: Pressing gain trim

Range : -1.0 - +1.0
Default : 0.0
Units : -

Function

To adjust the gain in the pressing phase of the beam.

Description

It is sometimes desired to adjust (trim) the preset gain of the pressbrake movement during the pressing and decompressing phase. Especially when you have some vibrations in the pressing phase you can decrease the gain. But also the positioning at the programmed position must be correct.

Programming 0.0 will give the preset standard value for the gain.

Parameter 50: Machine length between the cylinders

Range : 0 - 15000

Default : 2000

Units : mm

Function

The length of machine table between the cylinders will be used to compute the table deflection.

Description

This parameter is used to compute the machine table deflection. The table deflection is only computed when a crowning adjustment device is connected. (See chapter 6).

You have to program the machine length between the mid position of the 2 cylinders. See also machine parameters 'Inertia under beam', and 'Inertia upper beam'.

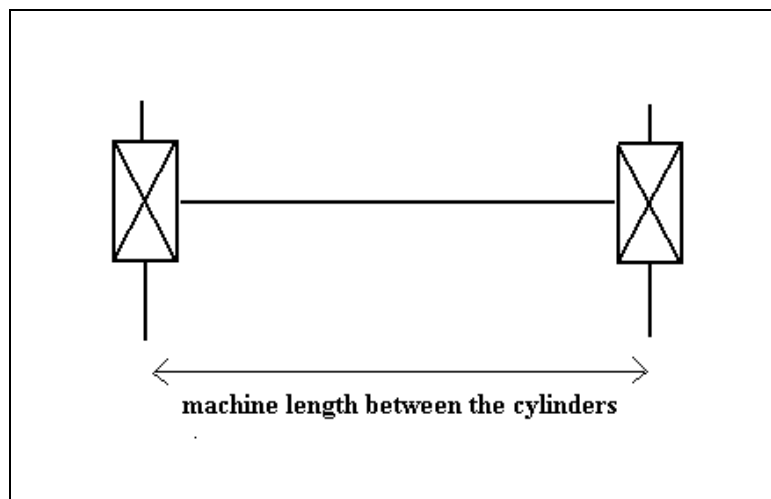


Figure 50.a

Parameter 51: **Inertia under beam**

Range : 0 - 99999
Default : 624
Units : 1000 cm⁴

Function

The inertia of the machine table is used to compute table deflection.

Description

This parameter is used to compute the machine table deflection. The table deflection is only computed when a crowning adjustment device is connected (see chapter 6).

See also machine parameters 'Machine length between the cylinders' and 'Inertia upper beam'.

Example

Inertia = 1349000

Program: 1349

Parameter 52: **Inertia upper beam**

Range : 0 - 99999
Default : 776
Units : 1000 cm⁴

Function

The inertia of the machine upper beam is used to compute table deflection.

Description

This parameter is used to compute the machine table deflection. The table deflection is only computed when a crowning adjustment device is connected. (See chapter 6).

See also machine parameters 'Inertia under beam' and 'Machine length between the cylinders'.

Example

Inertia = 1349000

Program: 1349

Parameter 53: **Not used**

Parameter 54: **Total machine length**

Range : 0 - 15000
Default : 2000
Units : mm

Function

Total machine length for check in relation with the product length.

Description

When the operator programs a bending length longer than the programmed total machine length a warning appears on the screen.

Parameter 55: **Punch clamp pressure**

Range : 0-255
Default : 0
Units : DA-points

Function

Pressure setting for correct punch clamping.

Description

It is possible to control the pressure valve output for the hydraulic system, specifically meant for the punch-clamp application. This can only be achieved by means of the sequencer file.

Parameter 56: **Die clamp pressure**

Range : 0-255
Default : 0
Units : DA-points

Function

Pressure setting for correct die clamping.

Description

It is possible to control the pressure valve output for the hydraulic system, specifically meant for the die clamp application. This can only be achieved by means of the sequencer file.

Parameter 57: Valve ramp closing

Range : 0 - 255
Default : 255
Units : DA-points / 5 ms

Function

To program a valve deflection ramp at the start of status closing (status 2).

Description

When you program 255 than you have no ramp. The lower the value you program the longer the ramp will be.

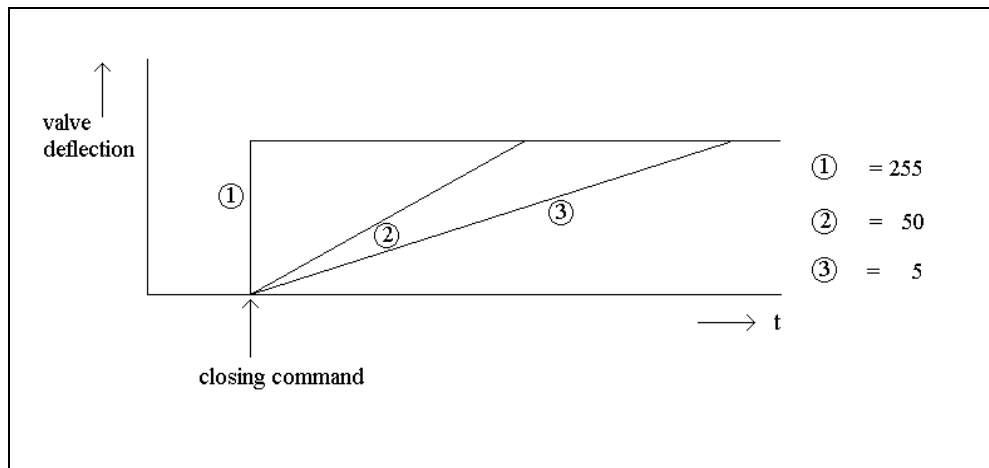


Figure 57.a

Parameter 58: **Not used**

Parameter 59: **Opening pressure**

Range : 35 - 100
Default : 100
Units : %

Function

Pressure setting during the opening phase.

Description

You can adjust the pressure during the opening movement of the beam. This value is a percentage of the maximum pressure (machine parameter 25).

Note

Make sure that the value for this parameter is high enough! If it is too low the beam will not move. This is a dangerous situation! When after switching on the pump the beam does not move upwards, the control sets the output signal UDP active.
When the beam is below its reference point it will come down without finding its reference when a closing command is given. This can damage the tools!

Therefore the minimum value is set to 35%.

Parameter 60 - 119: **Not used**

Parameter 120: **KO-table from floppy on/off 1/0**

Range : 0 - 1
Default : 0
Units : -

Function

To read the KO-table from floppy.

Description

During development and testing of KO-tables it can be helpful to read this file from floppy instead of loading a complete new application.

0 = using KO-table from the internal application;

1 = loading KO-table from floppy.

Press the key  to select the required setting.

With this parameter set to 1 the KO-table is only read from floppy during start up.

After testing the KO-tables you should set this parameter to 0 again. Make sure the required KO-table is on the application floppy with the other files and execute the normal application load procedure.

Parameter 121: Sequencer from floppy on/off 1/0

Range : 0 - 1
Default : 0
Units : -

Function

To read the sequencer file from floppy.

Description

During development and testing of sequencer files it can be helpful to read this file from floppy instead of loading a complete new application.

0 = using sequencer file from the internal application

1 = loading sequencer file from floppy

Press the key  to select the required setting.

With this parameter set to 1 the sequencer file is only read from floppy during start up.

After testing the sequencer file you should set this parameter to 0 again. Make sure the required sequencer file is on the application floppy with the other files and execute the normal application load procedure.

Parameter 122: Sequencer debug on/off 1/0

Range : 0 - 1
Default : 0
Units : -

Function

To activate the sequencer debug facility. Press the key  to select the required setting.

Description

When the sequencer debug facility has been switched on (=1) a soft key appears in the manual mode. Activating this key will generate a test row on top of the screen. In this row you can check the equations of the sequencer. This test row overwrites the service row (in case the service row is active).

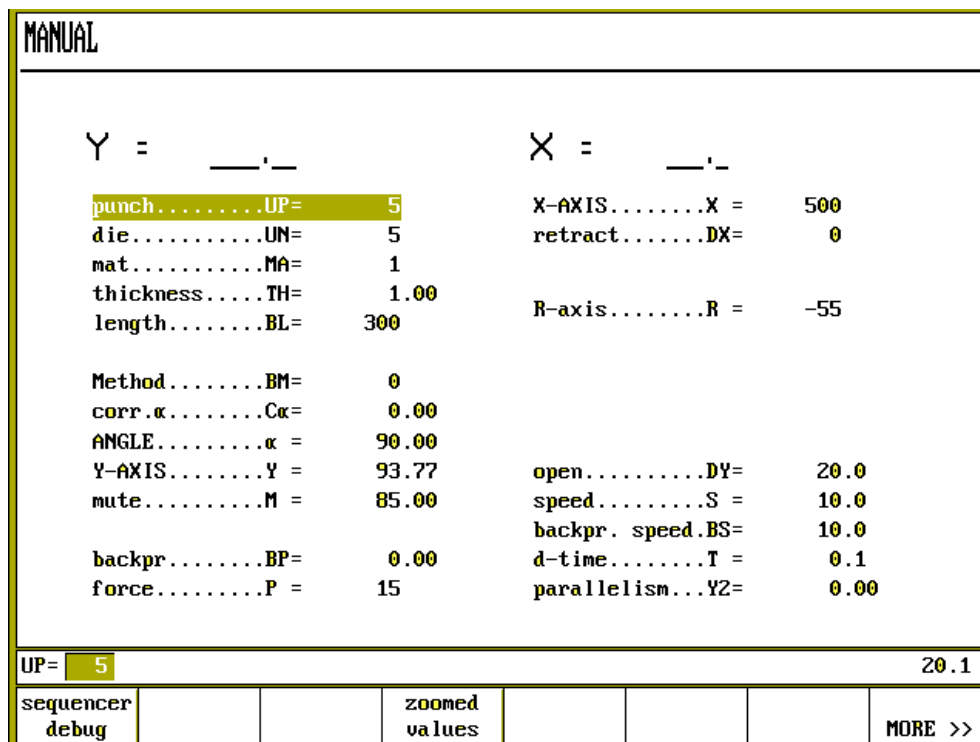


Figure 122.a

Parameter 123-130: Sequencer options

Range : 0000 - 1111
Default : 0000
Units : -

Function

To set general purpose sequencer option flags.

Description

You can set 4 flags per sequencer option parameter. Each flag can have the value 0 or 1.

- sequencer option flags 4..1 123 = 0000
- sequencer option flags 8..5 124 = 0000
- sequencer option flags 12..9 125 = 0000
- sequencer option flags 16..13 126 = 0000
- sequencer option flags 20..17 127 = 0000
- sequencer option flags 24..21 128 = 0000
- sequencer option flags 28..25 129 = 0000
- sequencer option flags 32..29 130 = 0000

To set option flag 1 and 2 you should program parameter 123 as 0011. Pay attention that you count **from right to left**. The lowest flag of each parameter is the most right digit.

These option flags are mapped on the flags 7664 - 7695. These flags have also been added to the press.def file. Therefore with parameter 123 set to 0011 the flags 7664 and 7665 will be set to 1.

Variable	Flag
M-OPTION1	7664
M-OPTION2	7665
...	...
M-OPTION32	7695

Note 1

If you are using the standard Delem sequencer and not creating your own sequencer, then these parameters have no function.

Note 2

For more information about working with the sequencer file please refer to the sequencer manual. This manual can be requested at Delem.

Parameter 131: UAP from floppy on/off 1/0

Range : 0 - 1
Default : 0
Units : -

Function

To read the UAP.CMD file from floppy.

Description

During development and testing it can be helpful to read the UAP.CMD file from floppy instead of loading a complete new application.

0 = use the internal UAP file, if valid.

1 = load UAP.CMD from floppy

Press the key  to select the required setting.

With this parameter set to 1 the UAP.CMD file is read from floppy during start up.

The file UAP.CMD can be compared with the file APPL.CMD: it is a short text file with instructions for the control to copy UAP files from floppy to the control. Make sure the intended UAP (User Application) is present on the floppy disk.

After testing the UAP.CMD file you should set this parameter to 0 again. Once the UAP has been tested and approved, the instructions of the UAP.CMD file can be integrated in the normal application loading procedure. Therefore you should modify the APPL.CMD file on the application floppy. Make sure the required UAP file is on the application disk with the other files.

For more information about UAPs please contact Delem.