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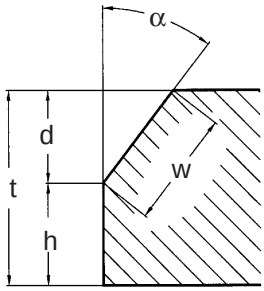
Technical data

Capacity

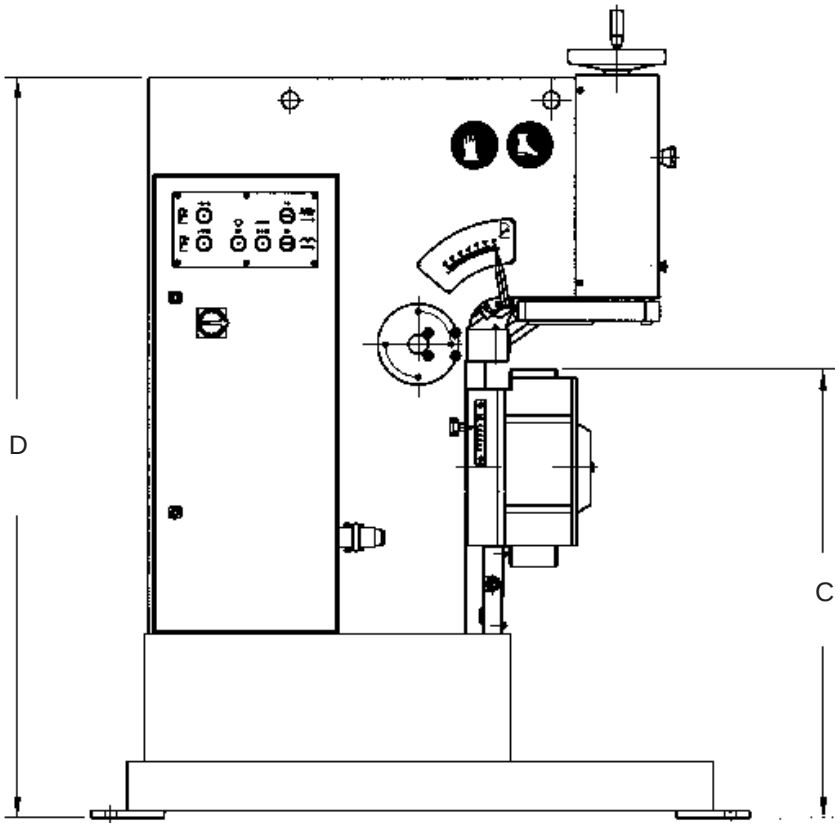
α = Bevelling angle
d = Depth of bevel
h = Root face
w = Width of bevel



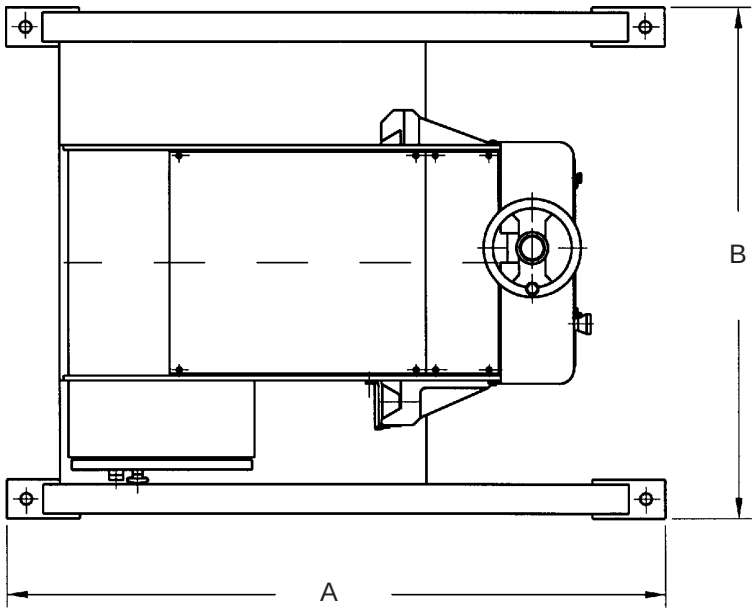
	Tensile strength							
N/mm²	390		390 - 490		490 - 590		590 - 690	
α	w	d	w	d	w	d	w	d
25°	25	22,7	19	17,2	15	13,6	13	11,8
30°	25	21,7	19	16,5	15	13,0	13	11,3
35°	25	20,5	19	15,6	15	12,3	13	10,7
37,5°	25	19,8	19	15,1	15	11,9	13	10,3
40°	25	19,2	19	14,6	15	11,5	13	10,0
45°	25	17,7	19	13,4	15	10,6	13	9,2
50°	25	16,1	19	12,2	15	9,6	13	8,4
55°	25	14,3	19	10,9	15	8,6	13	7,5

Maximum bevelling speed:	10 mm	3,1 m / min
	15 mm	2,9 m / min
	20 mm	2,7 m / min
	25 mm	1,5 m / min
Smallest root face:		3 mm
Motor power at 50Hz:		4 kW
60Hz:		4,8 kW
Weight without accessories:		1300 kgs

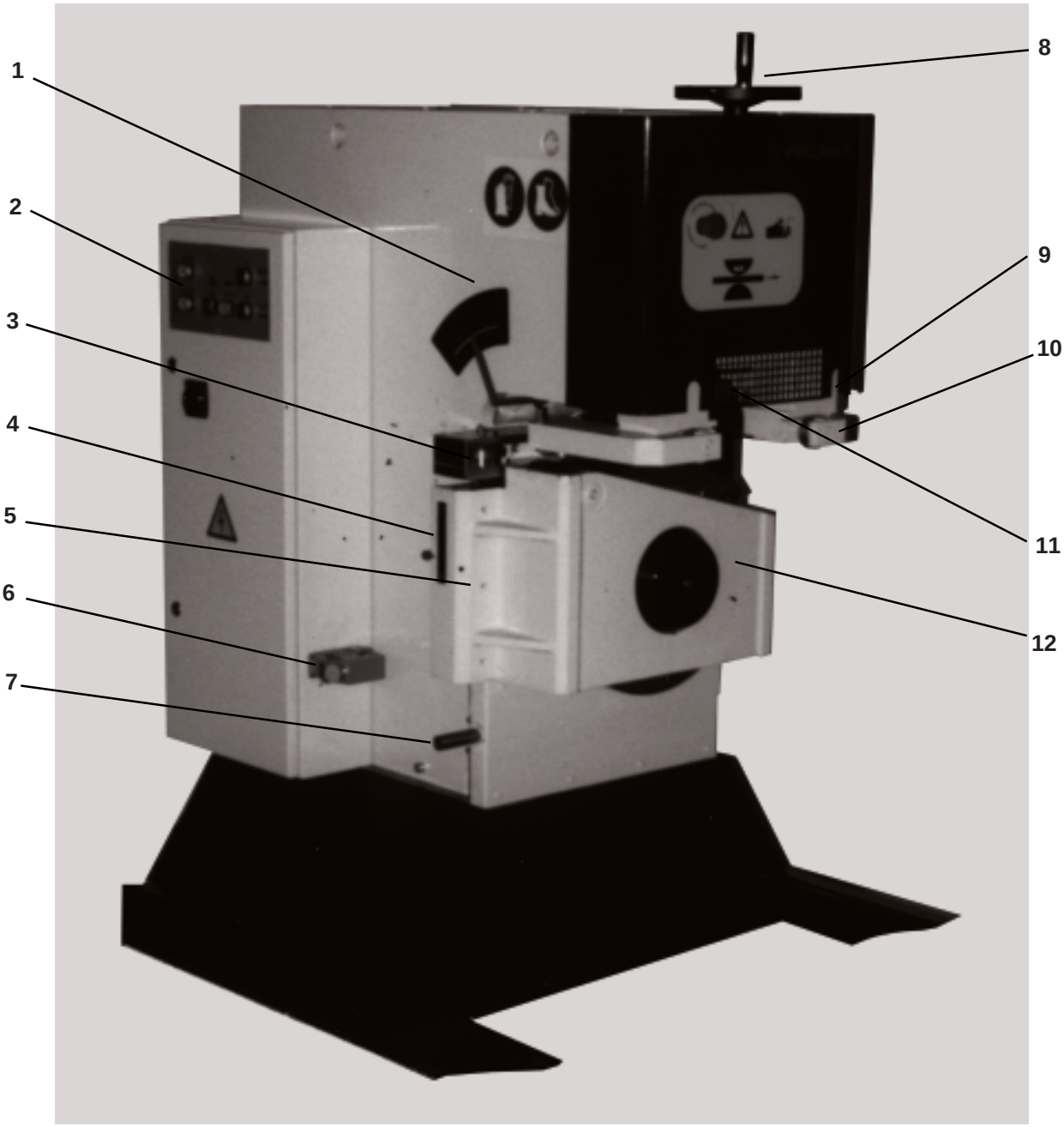
Dimensions



mm	inch
A 1350	A 53"
B 1040	B 41"
C 1510	C 59 1/2"
D 915-965	D 36"-38"



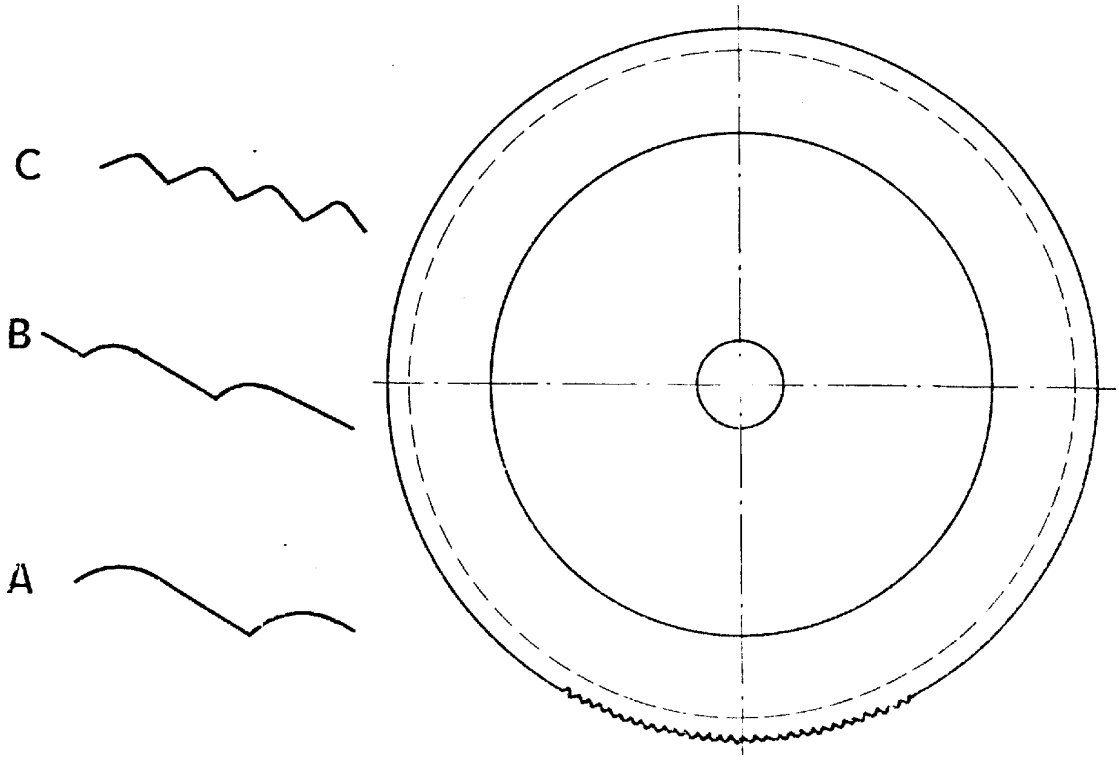
General description



1. Scale for adjusting bevelling angle
2. Operating panel
3. Guiding device
4. Reading of adjusted straight edge (land)
5. Locking screws for supporting device
6. Connector for remote control panel
7. Height adjustment of supporting rollers
8. Height adjustment of hold down
9. Locking of hold down in adjusted position (option)
10. Hold down
11. Machine light
12. Supporting device

Selection of cutter

Generally a fine-toothed cutter gives the smoothest cut. Difficulties, however, could arise with feeding, when bevelling harder or tougher materials, especially if the bevel is deep. In such cases a coarse-toothed cutter has to be used. Cutters with three different serrations can be supplied with the machine. Compare A, B and C on the picture below.



A. Coarse serration: This cutter is recommended when performing maximum dimensions of bevels on large and heavy work pieces.

B. Medium serration: Suitable for large bevels on small work pieces.

C. Fine serration: Advantageous for all materials when the width of bevel is below 15 mm (.59") and when the weight of the work piece is below 50 kg (164 lbs).

Instruction for Grinding

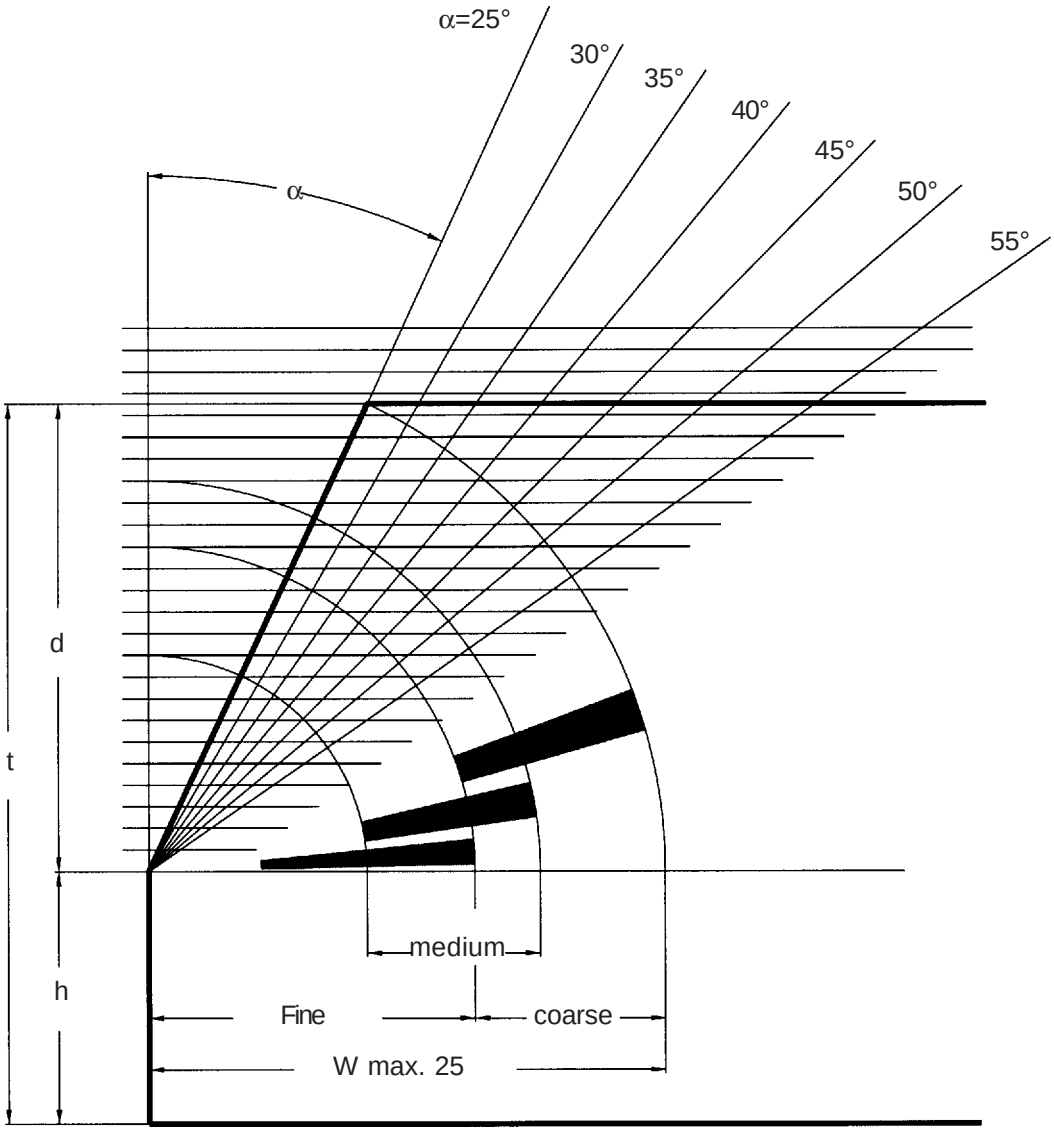
The cutter should be ground only on its front face. The grinding can be performed on a surface grinding machine or in universal plain grinder if preferred.

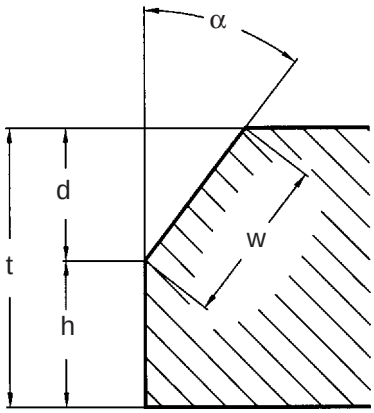
Recommendations:

Grinding wheel: 32-A-46-18
Depth of grinding: 0,05 - 0,2 mm (.002" - .008")
Feeding: 2 mm (.08") per working stroke

Cooling medium in abundance.

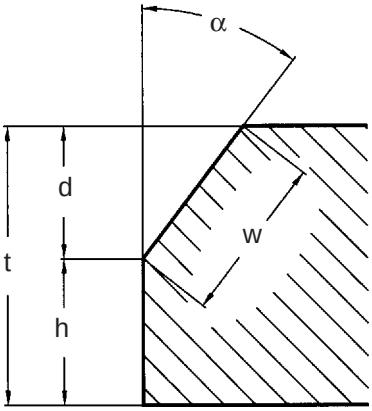
Hone the cutting edge after grinding. Normally a cutting wheel can be reground three or four times. Total maximum 2 mm (.08") or 0,5 mm (.02") each regrind.
Place spacers corresponding to the depth of grinding between the cutter and the end face of the main spindle.
Spacer 0,5 mm (.0197") in thickness to be fitted onto the rear side of the cutter. Order No 163 275 01.





Medium or coarse serrated cutter is recommended when bevelling workpieces heavier than 50 kgs (164 lbs).

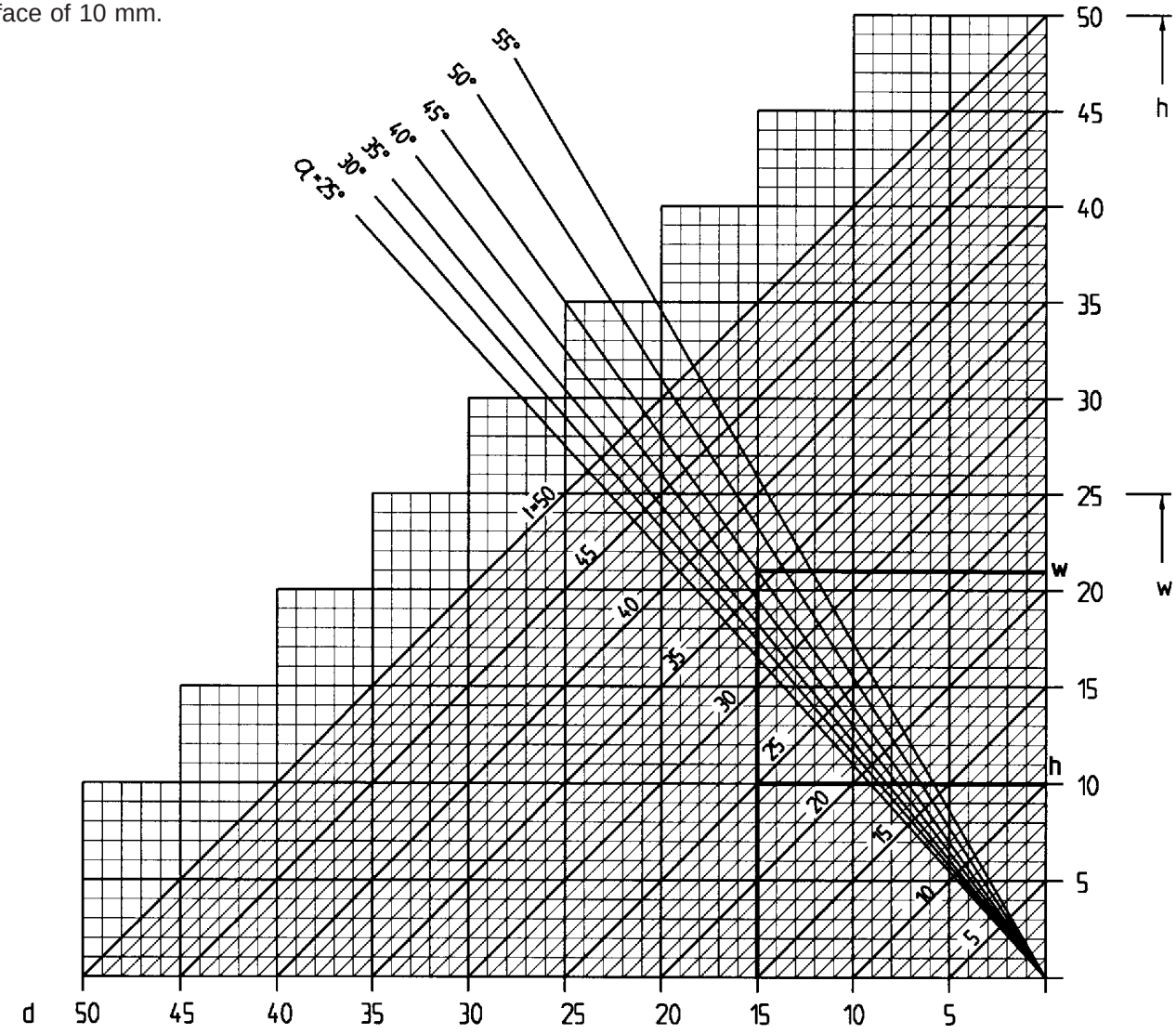
Bevelling dimensions

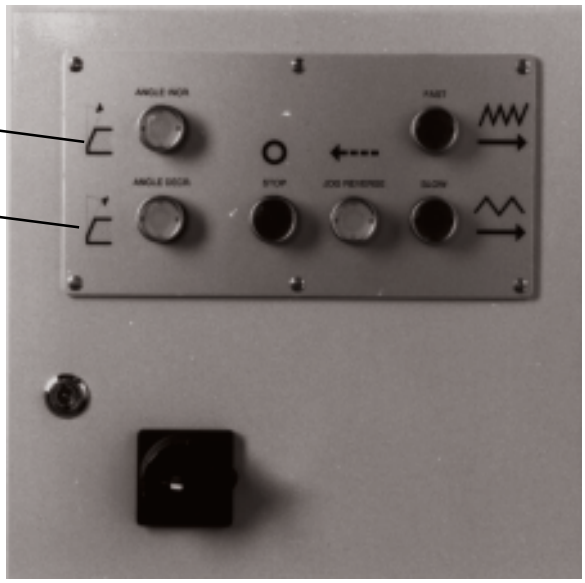


α = bevelling angle
w = width of bevel
d = depth of bevel
h = root face
t = plate thickness

The momographic diagram below illustrates the relationship between these quantities.

Example. A bevelling depth of 15 mm and a bevelling angle of 45° in 35 mm plate thickness give a bevelling width of 21 mm and a root face of 10 mm.





Bevelling angle

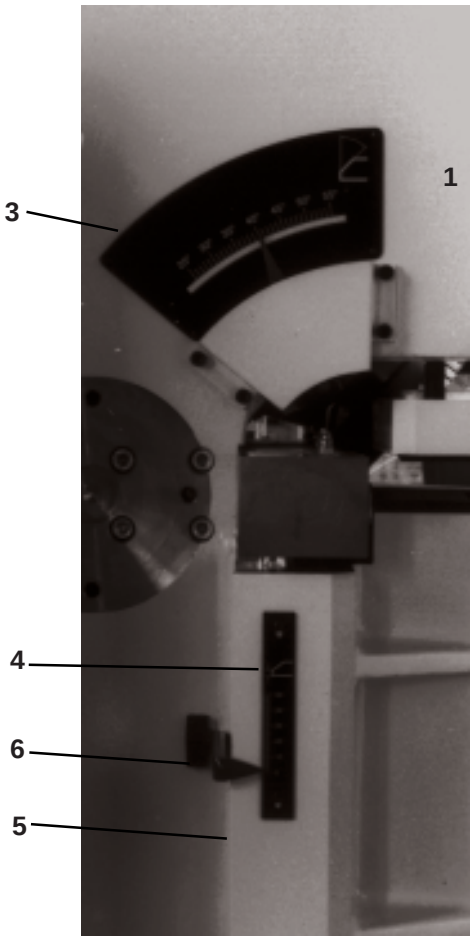
The bevelling angle is adjusted by changing the inclination of the main spindle. Adjustment by means of an electric motor operated by the push buttons

1. for increasing of the bevelling angle

2. for decreasing of the bevelling angle

Adjusted angle to be read on the scale 3.

NOTE! Do not adjust when cutter is engaged.



Straight edge (Land)

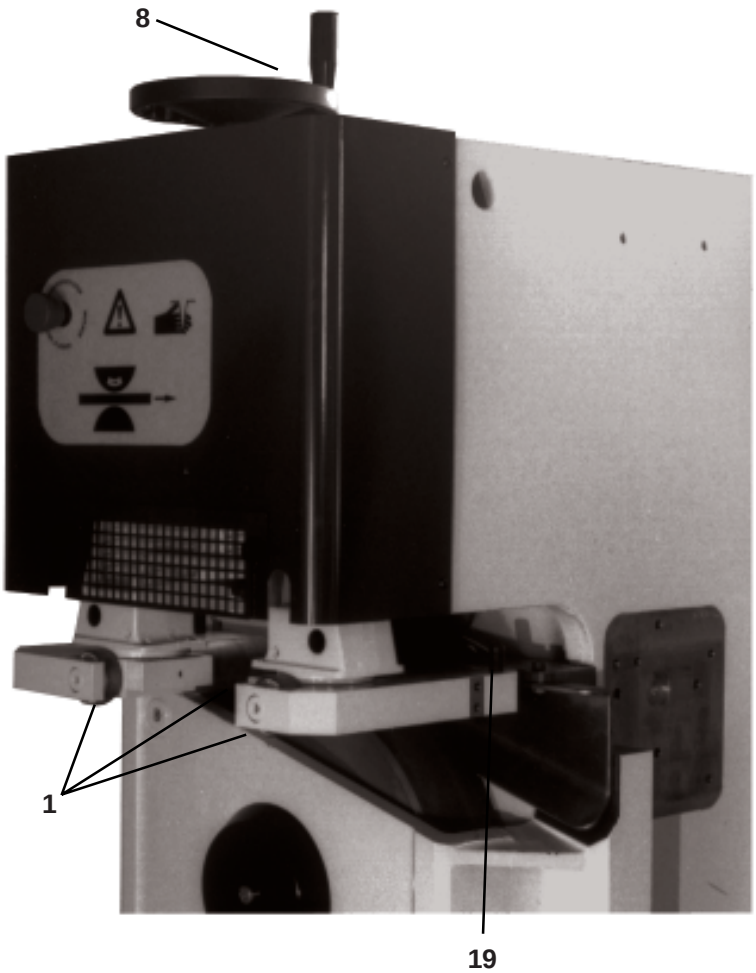
The adjustment of the straight edge is carried out by raising or lowering of the supporting device. By clock-wise turning of the adjusting screw 7 the supporting device is lowered and the straight edge increased. The clamping screws 5 are adjusted for a movement free from play and shall normally not be tightened.

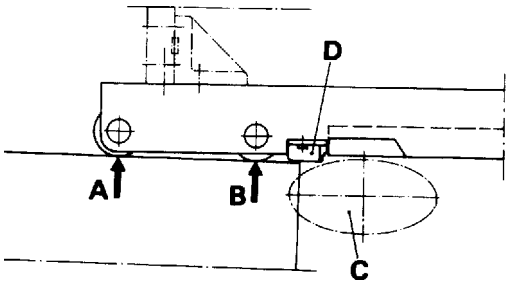
The pointer 6 indicates on the scale 4 the dimension of the adjusted straight edge.

Smallest allowed straight edge is 3 mm.

Hold down

Place the workpiece or a sample with the same thickness onto the supporting rolls after that the straight edge has been adjusted as per desire. Adjust the hold down rolls 10 by means of the hand wheel 8 to a light contact to the plate.
When making larger bevels on squares a certain torsion of the work piece can be noted. This tendency can be eliminated by setting the screws 19 against the frame.





Operation

After that the machine is adjusted for desired bevelling angle, straight edge and the height position of the hold down is calibrated as previously described the machine is ready for operation.

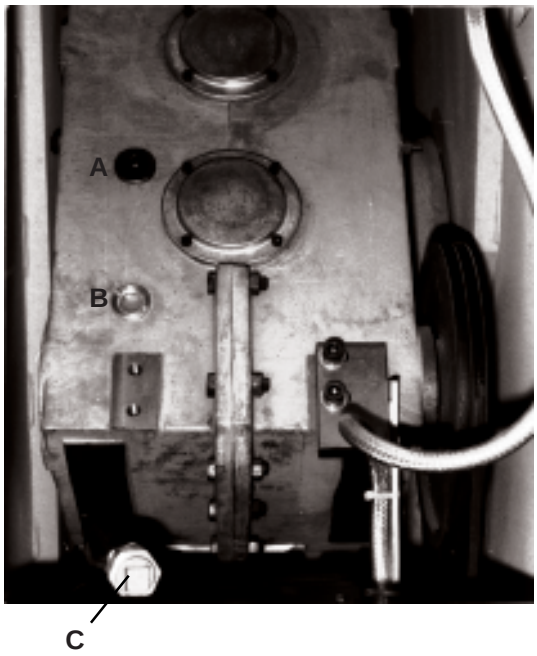
Start the driving motor. High speed when the bevel has small dimensions and low speed at large bevels. Push that edge of the workpiece which shall be bevelled against the guiding rolls A and B. Feed the workpiece to engage-ment with the cutter C. In order to make it possible for the cutter to grip hold of the edge of the plate a certain feeding force may be necessary particularly if the width of the bevel is large.

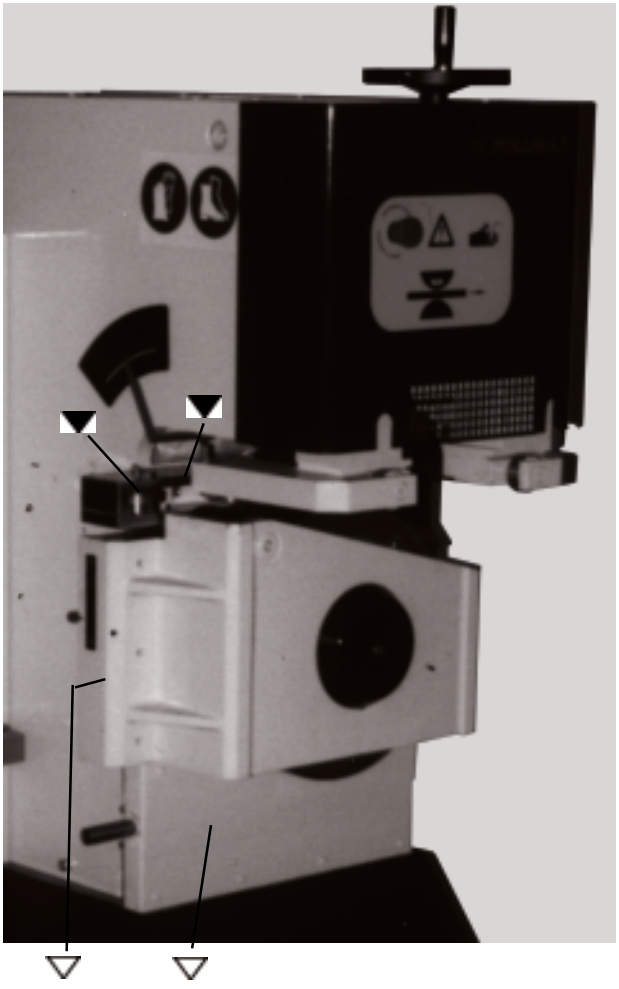
The backstop D prevents the workpiece from turning when the guide rolls have been passed. It is of advantage if the length of the backstop is matched to the dimensions of bevel. The standard backstop is suitable for widths of bevel above 10 mm (3/8"). Below this value a special ex-tended backstop No 163 276 01 is recommended.

Larger and heavier workpieces shall be resting on a supporting table with rolls or balls placed in front of the machine. If this rule is not observed the cutter can be damaged.

Be careful with toughened plate qualities. As will be seen from the technical data on page 2 the tensile strength of the plate to be bevelled may not exceed 685 N/mm. Above this the risk for damages to the cutter is large.

NOTE! The beveling angle may NOT be shanged during production. Serious damage may accure!





Lubrication

The gearbox must contain oil to a level visible in the oil gauge glass B when the bevelling angle is set at 30° and the machine is standing in normal vertical position. Oil filler plug at A and drain plug at C.

Necessary oil quantity: 10 l.

Recommended grades of oil:	
BP	Energol GR-XP 220
Mobil	Gear 630
Shell	Omala Oil 220
Texaco	Meropa 220

The guiding and supporting rollers should be greased at ▼

Recommended greases:	
BP	LS-EP2
Mobil	Mobilux EP2
Shell	Alvania EP Grease 2
Texaco	Multifak EP2

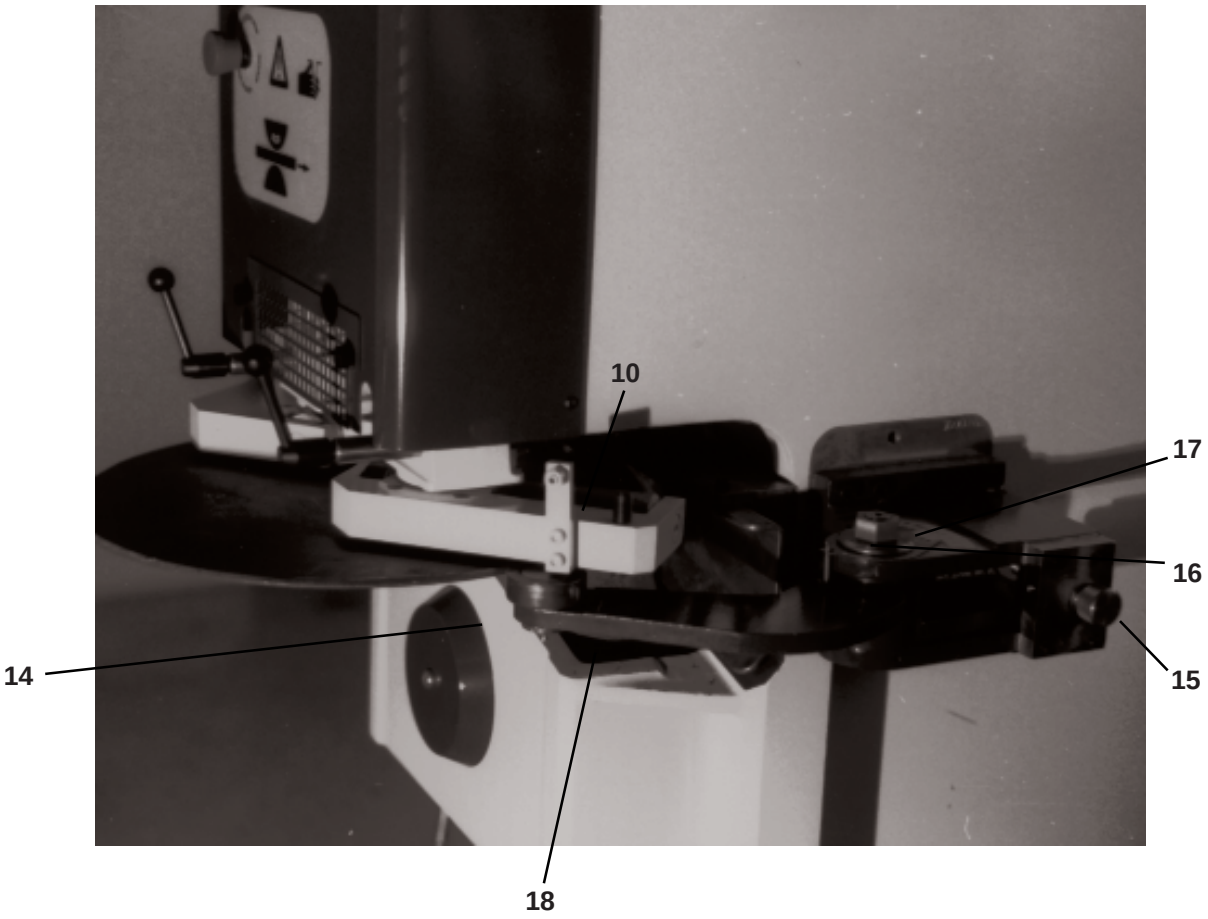
Lubricating intervalls: 50 hours of running

The same quality of grease may well be used also for greasing of slides and adjusting screws at ▽

Lubricating intervalls: 50 hours of running

Trouble shooting

Nr	Problem	Reason	Measure
1	Difficult to feed in	The cutter is slipping	Sharpen the cutter. If possible select a more coarse-serrated cutter.
2	Uneven surface of bevel	a) The cutter is dull	Sharpen the cutter
		b) Unsuitable relationship between material - bevelling angle-dimensions of bevel - serration - tool angle	Change some of these factors. For instance, select a cutter with finer serration.
3	The measurements of bevel differ in the starting and the finishing end	The machine sags	Tighten the slide of the supporting device.
4	The chip is not sheard off at the root	Too coarse serration of the cutter in relation to the plastic properties of the plate material.	Select a cutter with finer serration
5	Damage of cutter	a) Wrong setting of the machine	Check
		b) Overload	Check that the width of the bevel in relation to the strength of plate is within the capacity of the machine
		c) The cutter hits the large supporting wheel depending on machine deflection	As point 3 above. Increase the space between the edge of the cutter and the supporting wheel.
		d) Outer additional forces	Relieve the machine by using suitable supporting tables. If the machine is movable, check that the suspension is sufficiently elastic
		e)Jamming between supporting roller and cutter	Tighten the hold down so that the workpiece will be prevented from tilting



Bevelling of discs (option)

When bevelling discs, the bevelling machine must be equipped with a special device for guiding of the workpiece. The picture above shows the attachment which has been developed for X97. As will be seen the attachment consists of an extra guide roll 14 with means for adjusting 15, angular locking device 16 and adjustment scale 17. The entire attachment is to be screwed onto the right side of the machine frame. The normal backstop of the machine serves as inlet guiding device.

For adjusting undo part 16 and open the tooth clutch, which blocks up the angular setting. Turn the lever 18 outwards or inwards to desired diameter of disc as per scale 17. Fine adjustment by means of the handle 15.

Put a disc in the machine and adjust in height the hold down 10. Turn also the arms of the hold down in such a way that the roller shafts coincide with the center of the disc.

The smallest disc diameter is limited to about 450 mm. The largest bevelling width which can be achieved when using this extra guiding attachment is about 20 mm

Order No 164 090 70

Bevelling of narrow flat iron (option)

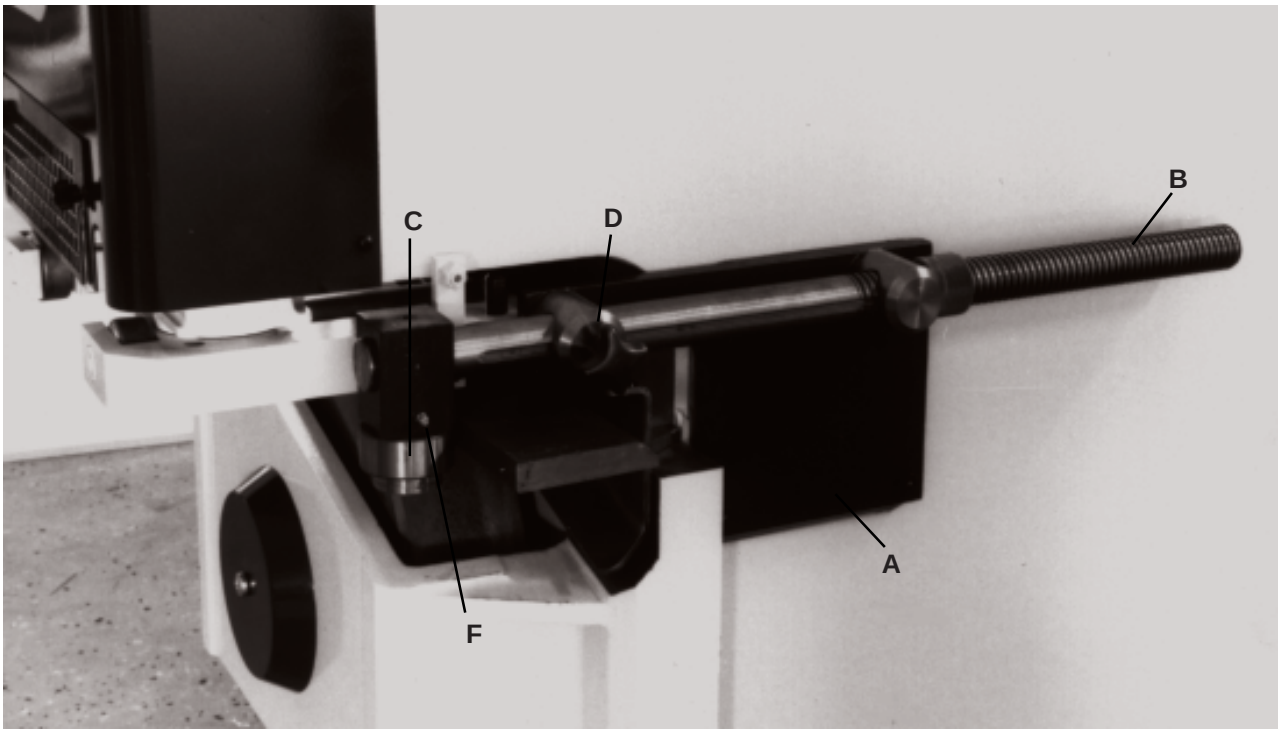
When bevelling narrow flat steel bars and similar work pieces the bevel width may under certain circumstances show a tendency to increase during the final phase of the bevelling operation. In order to eliminate this, a special guiding attachment for work pieces with parallel edges has been developed for X97.

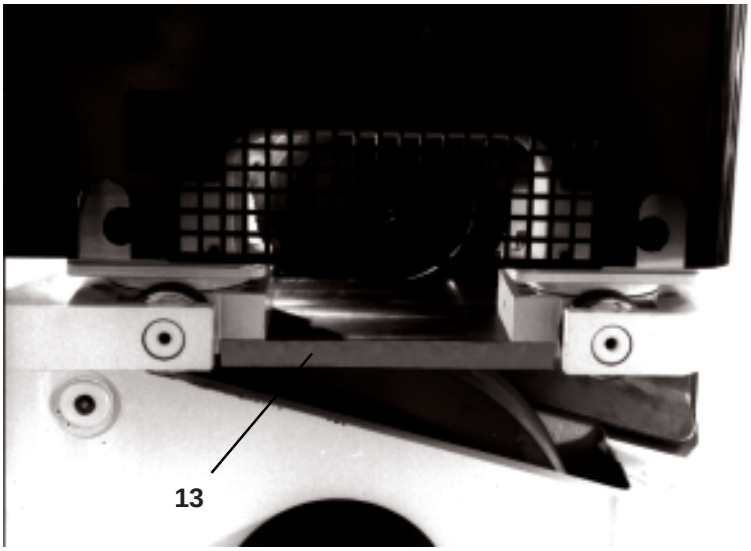
The special guiding attachment is screwed onto the outlet side of the machine frame.

The guiding attachment consists of a bracket A which is carrying the bar B. A guiding roll C complete with bearing is fixed to the free end of the bar.The bar is movable in axial direction.To be locked against undesired turning by means of the hand wheel D. By setting the nut E against the right bar bushing necessary locking in axial direction is obtained. The guide roll is lubricated through the nipple F.

This guiding attachment is recommended for plate widths between 50 - 350 mm (2" - 13 3/4")

Order No 163 508 70.





Bevelling of small workpieces (option)

Bevelling of smaller workpieces than 300 mm (12") and/or obliqued plates will be easier if the hold down device is equipped with an extra hold down rail 13 which prevents tilting. Please compare the adjoining picture. The hold down rail, which is manufactured in a case hardened steel, is fitted to the arms of the hold down device of the machine.

The hold down rail will be delivered as an extra attachment with order
No 163 081 70.

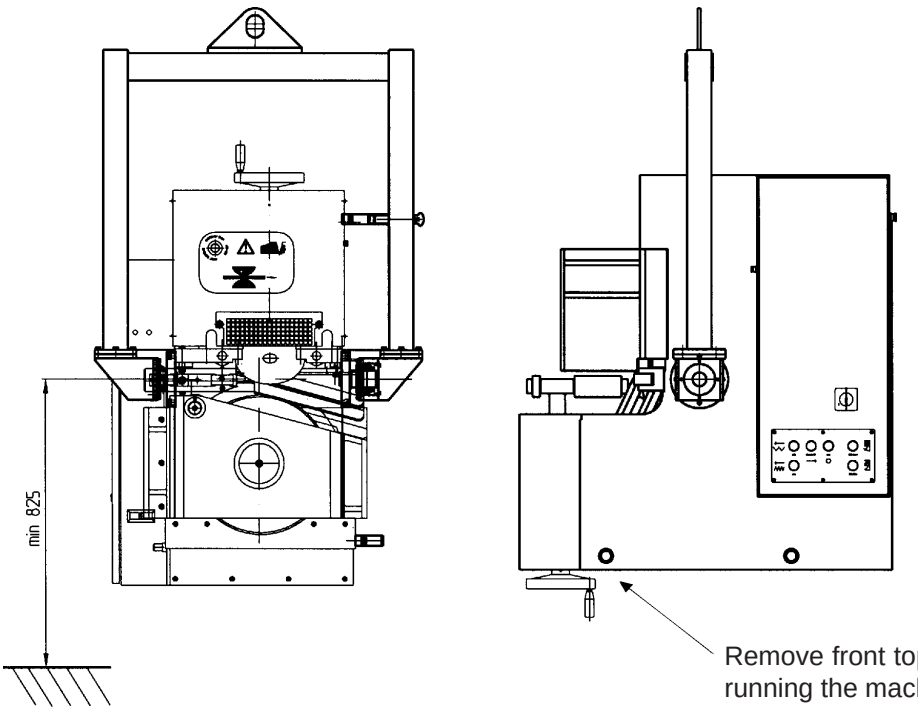
Lifting device (option)

When bevelling large workpieces the machine can be hanged in crane with a lifting device fitted to the machine frame. The machine travels by itself along the plate edge. Follow manually with the crane.

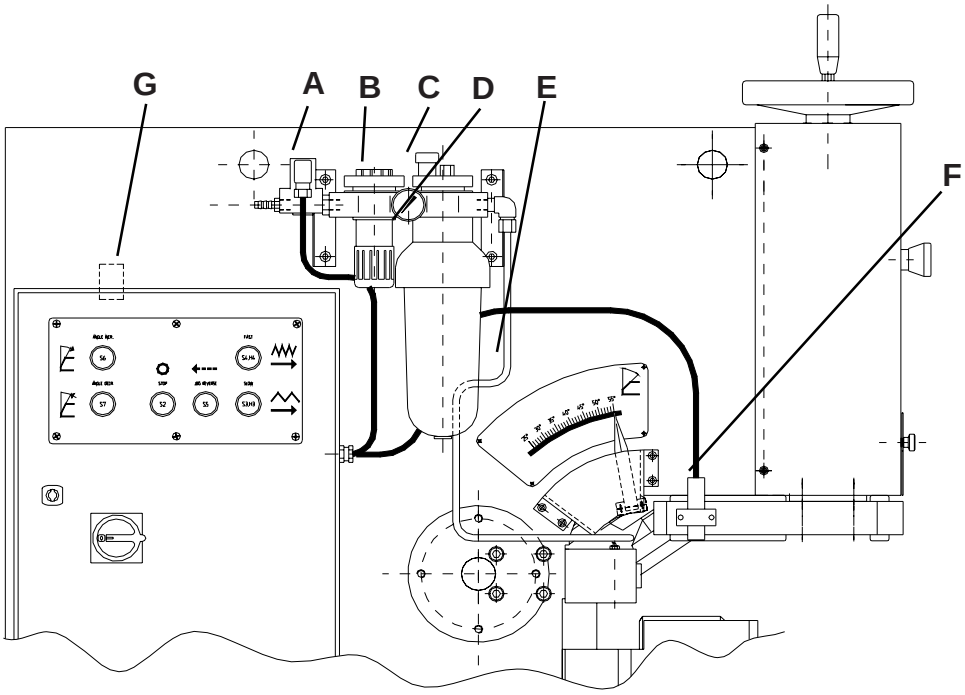
When running the machine upside-down, the front top cover to be removed in order to get scrap material to fall through.

Note! The bevelling angle to be set at 35° before turning the machine upside-down.

Order No: 164 085 70



Oil mist lubrication (option)



The lubricating unit consists of the following components:
A. Solenoid valve
B. Pressure regulator
C. Oil mist lubricator
D. Pressure gauge
E. Nozzle

For the control of the unit the following details are also included:

F. Proximity switch
G. Auxiliary contact block

The lubricating unit is to be fitted to the left side of the machine frame as illustrated on drawing 164 095 70. A copper tube is acting as a nozzle and has to be bent towards the point of the cutter. Connect the air supply to the solenoid valve.

Air pressure about 6 bar (0,6 Mpa).

The lubricating fluid is filled into the bowl after that the cap on its top is taken away. Bowl capacity 1 lit. As cutting fluid FLUID FORM CP (Pullmax 558 100 20) is recommended. Mix with water 1:10.

Adjust the lubricator for rich mixture (about 2 drops per secoond). It is to be adjusted by means of the knob onto the filler cap.
The amount of oil mist is adjusted by the pressure regulator (0,1 - 0,2 bar).