

# 1. INSTRUCTIONS FOR USE

## 1.1 Installation of the machine

Remove *nut* at the right side of the aluminium box. Move the box to the right side and turn it around with the open side up. Remove tool-box. Insert the machine from the left side into the groove of the box, turn the left *sidepart* down, without loosening its screw, and fix the nut. Put the *crank* on the axis and fix the screw firmly with the bigger key. Open the *sledge* towards the back.

## 1.2 Mounting the reed

Fix the soaked reed firmly to the correct *mandrel*, the blades parallel to the *base* of the mandrel. Adjust the length of the mandrel with the small key so that the total length from the base to the tip of the reed is about 11cm. To open the *clamping bow* at the left of the machine, the *lever* must be vertical.

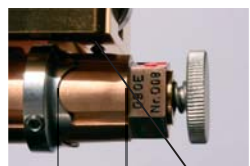
Put the base of the mandrel on the clamping-device and slide the reed over the *tongue* to the marks; (the base is welded by the index finger from above). Be sure that the base of the mandrel is so placed laterally, that the blade of the reed is parallel to the tongue. Turn up the clamping bow and the lever and fix the lever downwards with moderate force. Fix the *gold clamp* at the base of the reed blades, after having put the reed in the middle of the marks until it locks gently.

## 1.3 Mounting the template (matrix)

Put the correct *template* on the axis at the right side, the original segment with the name of the instrument and the number upwards (signification of the correction-segments see 2.1). Fix screw well with the spring and washer.



#### 1.4 Adjustment of the length of the scrape (crown on the template) and the scraping way (small control knob)



ball  
distance of the crown

The position of the **crown** on the template defines the length of the scrape and causes the semicircular base of the scrape. Moving the crown allows to change the length of the scrape. After displacement, fix the screw of the crown firmly with the smaller key.

The distance of the crown has to be longer than the length of the scrape for about 2.5mm. After that, the scraping way has to be adjusted in accordance.

**The small knob defines the length of the scraping way. Turning the small knob changes the starting point of the sledge at the base.**

The scale is in millimetres. The shown value does not correspond to the length of the scrape but to the way of the sledge, that goes beyond the tip of the reed - the value is about 2mm above the length of the scrape.

Loosen the *fixation screw* on the back and adjust the knob, so that the ball right side underneath the sledge follows the whole distance of the crown.

- Scraping way adjusted **too short**: the reed is not scraped to the base.
- Scraping way adjusted **too long**: at the beginning of the scraping process there is a double knock (the ball hits the crown and drops after it on the template). In side position areas of scraping this is quite normal.

#### 1.5 Adjustment of the rotation of the reed-axis according to the width of the reed



This avoids useless scraping movements on the outside of the reed and reduces the risk of damaging the sides of the reed.

Remove the *bronze clamp* at the left rear side (beside the fixation screw of the left knob) from the groove-nut by pulling it backwards and put it back correctly.

Oboe and Oboe d'amore

the thicker side (bronze color) has to face upwards, leaving only a minimal rotation of the reed-axis possible

Cor anglais

when the black side faces upwards, the rotation is moderately limited

Baritone or Baroque-Oboe

if the clamp is not in place, this allows the maximum of rotation (maximal width of the reed: 10mm)



#### 1.6 Adjustment of the scraping thickness (big control knob, left)

**The left knob allows varying the thickness of the scrape. Thus, the surface of the template will be copied, respectively scraped more or less deep into the cane.**

The scale is in hundredths of millimetres. To turn the knob, loosen the fixation screw at the back; before scraping, fix it again.

On starting the work and after each rotation/changing of the knife, the knob has to be turned towards plus (thicker scraping), because the very sharp knife would otherwise scrape too deeply. According to the result of the scrape, put the knob step by step towards minus, until the reed is o.k.

**According to the condition of the knife, the value on the knob to achieve the desired scrape can vary a lot. The important factor is that the amount of rotation of the knob changes the thickness of the scrape absolutely exactly. Turning the knob to the right (to minus) for three marks of the scale will make the scrape exactly 3/100mm thinner, no matter if from +13 to +10, from +2 to -1 or from -3 to -6.**

#### 1.7 Adjustment of the minimal thickness of the scrape (big control knob, right)

**The right knob limits the lowering of the sledge and defines the minimal possible thickness of the scrape.**

The scale is in hundredths of millimetres. This value is **absolute** and does not depend on the template.

The purpose of this knob is

- to make scraping corrections (see 2.2)
- to avoid a tip which is too thin, when the reed is scraped thinner
- to avoid scraping the tongue, when the left knob is put too much towards minus

In order to avoid the risk of a reed tip that is too thin, on starting the work and after each rotation/changing of the knife, the knob has to be turned sufficiently towards plus and then, according to the result of scraping, will be lowered down step by step. **At the beginning, a value of about 10 on the scale is recommended** (which corresponds, with a new knife, to a minimal possible thickness of the scrape from about 5/100mm).

**The shown value on the knob is not important, as it does NOT represent the thickness of the tip. The important factor is, that the amount of rotation of the knob is extremely precise: the changement of value on the knob represents exactly the changement of the lowest possible position of the sledge.**



## 1.8 Scraping the reed

After the fixation of all knobs scraping can begin.

**The crank is turned in the direction of the arrow. At the same time you turn the main-axis of the reed very slowly from one side to the other, until there are no more shavings.**

From time to time the knife has to be cleaned from blocked shavings by a brush or a cloth with the sledge opened.

The best rotation speed is about 100 turns per minute or a little bit more («Allegretto»). If you turn the crank too rapidly, the base of the scrape will get an ugly double contour, due to a jumping of the sledge that hits the cane.

After scraping both blades, the reed is tested. If necessary, the reed is scraped again, by turning the left knob towards minus. Should the tip of the reed remain too thick, the position of the right knob has to be controlled (see 3.2.) and probably lowered.

After working on a number of reeds, you will find the ideal position of the knobs (the values on the knobs do not represent the resulting scrape thickness, see 1.6, 1.7).

If the scrape at the base is asymmetrical or insufficient, the reason is a faulty **gauged** cane (sides too thin or asymmetric gauge).

**For every new reed, it is wise to turn the left knob a little bit towards plus, and to re-scrape according to cane quality.**

As the knife sharpness decreases, the knobs have to be adjusted a little towards minus little by little.

For further possibilities of correction of scrape see 2.1, 2.2.

Tip:

It's possible to test the **quality of cane** (not the intonation) by scraping a reed that is 1mm too long. After cutting to the correct length, the reed is scraped again, according to the quality of cane: may be with the same regulation of the left knob, may be thinner or even thicker.

Because of the very precise and symmetric scrape by the machine, it's only due to the cane quality, when a reed does not work.

## 1.9 Changing to other reeds of the oboe family

1. Mount the correct template (see 1.3)
2. Adjust the way of the sledge (see 1.4)
3. Plug in the bronze-clamp correctly (see 1.5)
4. Use the correct mandrel: That for the oboe has no name, the others have an inscription: „Oboe d'amore“, „Cor anglais“ (=English horn).  
For Baroque-Oboe the cor anglais-mandrel is generally fitting, for classical oboe depending on the staple.

### 1.10 Rotation / Changing the knife

The knife wears gradually. That's why the value of the left knob has to be turned towards minus from time to time to attain the same result. For the same amount, the right knob too has to be positioned to the minus, to allow the tip of the reed being scraped thin enough.



When the quality of scraping disimproves, the *knife* should be turned, this usually after about 40 to 50 reeds.

Open the sledge, mark the actual position of the knife with a fine felt pen, gently unscrew the *knife-fixation*. Remove the knife and clean it thoroughly, especially the shavings under the head of the knife. Insert the knife into the hole using a drop of oil, turn the marking clockwise for 5 minutes (1/12 of the circumference), press it into the hole with the fingernail and fix the screw firmly.

To avoid **rusting of the knife**, we recommend:

- cleaning shavings from it after having used the machine,
- using a drop of oil to press the knife into the hole when it's replaced/turned.

When the whole circumference is blunt (after about 500 reeds), the knife must be replaced by a new one. It can't be sharpened, because the thickness of the shavings and the adjustments would no longer be correct.

**After rotating or changing the knife, the big knobs have to be turned towards plus (at least +5/100), otherwise the scrape would be too thin. The correct position has to be found step by step again (see 1.6 and 1.7).**



## 2. CORRECTION POSSIBILITIES OF THE SCRAPE

### 2.1 The use of the template

The template consists of a cylinder with five different segments:

<b>Original</b>	The segment with the name of the instrument and the number is the original; the values for the scrape thickness of this segment can be found on the matrix-sheet.
<b>4 correction-segments</b>	The coloured part of the logo indicates the section being scraped making corrections; this has the same thickness as the original, the other sections are at a higher level and remain unscraped.
	After-scraping
	red all the scrape, except the heart
	green the sides of the scrape
	blue the attack (tip and edges)
	yellow the base

To adjust to the correction-segment, pull the template to the right, turn the desired segment up and click it in place.

### 2.2 Examples / Suggestions for corrections

The sound of the reed has a too clear tone, but it's otherwise well scraped	The tip is cut and the reed scraped again with the same adjustments, using the red segment of the template: the scrape will be as before, just omitting the heart, which thus remains thicker.
Lack of reed flexibility	Make an additional scrape with the green segment, turning the left knob e.g. 2/100-4/100 (=2-4 marks of the scale) towards minus. This will only scrape the sides thinner. The center will not be touched.
You want a dark, thick reed with a good attack	Scrape, using the original segment with the left knob adjusted towards plus (e.g. +3/100). Without removing the reed, change to the blue segment and scrape in the usual position of the left knob (-3/100 again). The result is a thicker reed with a good attack.

You want to have a longer scrape without altering the position of the crown on the template

Use the yellow segment, which only scrapes the base, and turn the right knob towards plus for 30/100 above the actual position. The reed will be fixed so that it slides over the mark on the tongue and lengthens the scrape as you wish. Thus the reed only will be scraped at the base, omitting all the other regions.

For your pupils you would like reeds that are thinner, but with a thicker tip

Position the right knob towards plus (e.g. +4/100), which makes the tip thicker. At the same time, the left knob is turned down (e.g. -2/100 or more), which makes the reed thinner.

## 3. CONTROL OF THE KNIFE-POSITION BY THE BRASS-MEMBRANE

The small brass leaf has a thickness of 5/100mm (5/100mm); it can be used to control the position of the knobs and the thickness of the scrape.

### 3.1 Example: Rotation or changing the knife

After rotation or changing the knife, the big knobs must be put towards plus. Whether this is sufficient, can be checked with the brass membrane: The sledge is closed without a reed and the brass-leaf is held under the knife. If the leaf remains free and is not blocked or trapped (especially at the end of the scrape) if you turn the crank slowly, there is no risk for the future reed.

### 3.2 Example: Control of the right knob position (often difficult to judge):

Template and crank are removed. The sledge is carefully closed and so positioned that the knife is in the middle of the tongue over the marking lines. Now the brass leaf is held under the knife and at the same time the right knob is turned until the leaf is slightly blocked. This position of the knob represents a minimal thickness of the scrape of 0.05mm. You should never go below this value, otherwise you risk a tip that is too thin or a damage of the reed-tip.

**Because of the perfect symmetrical scrape by the machine, even a thicker tip (0.07-0.1mm) still allows a perfect attack.**



## 4. MAINTENANCE

### 4.1 Lubrication

The machine needs little maintenance, but it should be lubricated regularly; this also facilitates the functions. Before lubricating, using key-oil for the oboe, remove all remains of oil and metal with a clean cloth, the same is done with superfluous oil after lubrication.

Regular lubrication is recommended for:

- the *axis of the sledge*
- the moving device of the sledge, especially the vertical axis with the little *roll*
- when the crank is removed: the space between the axis and the bearing

Occasional lubrication can be applied to:

- the axis of the knobs when they are totally removed.

**Attention in assembling, the depths of the distance-tubes have to point forwards**

- the two bearings of the *main-axis* of the reed
- the bearings of the clamping device

### 4.2 Further maintenance

Rust prevention is not necessary. The whole machine is stainless except the knife. We recommend cleaning shavings from it with a dry cloth and applying a drop of oil when rotating or changing the knife (see 1.10).



## 5. TECHNICAL DATA

Size of the aluminium box: 220x105x110mm.

Total weight: about 3.8kg

### Materials

Sandblasted stainless steel, brass and bronze (mostly gold plated).

Knife of tempered HSS-steel. Template of very hard Caro-bronze (bronze with phosphorus). Bearings of bronze, axes and fixation screws of stainless steel.

### Adjustment facilities

Left control knob	Range of adjustment for scrape-thickness: total 0.25mm Exactness of adjustment: 0.005mm
Right control knob	Range of adjustment for minimal scrape-thickness: 0.03-0.51mm Exactness of adjustment: 0.01mm
Small control knob	Range of adjustment (way of the sledge): Maximal length of scrape: about 17mm

### Templates

- Distance of measuring points longitudinal and diagonal: 0.7mm; a measuring point represents a scraping-surface of 0.5mm<sup>2</sup>.
- Right-Left-symmetry of template: difference maximal +/- 0.005mm.
- Level of correction segments in coloured areas compared with original segment: +/- 0.01mm.
- Level of correction segments in the other areas compared with the original segment: about + 0.06mm.

### Geometry of the scrape

- Radius of the ball that follows the template: 2mm. This determines the finest possible geometry of the scrape. Accordingly, „Steps of stairs“ is not possible, the ball changes them into a sloping-concave form with radius of 2mm.
- Maximal „step“ of scrape (e.g. from heart to tip):
  - for a length of 1mm: 0.27mm
  - for a length of 0.7mm (from one measuring point to the other): 0.13mm

