

The

AKKO
tune

Tuning Systems for Reed Instruments

AKKOtune compact

AKKOtune modular

AKKOtune modular LE

from

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AKKO
fixx
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Akkoardeon - Service

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AKKOtune compact (ATc)

The first version in May 2015 was still with sliders for air control and the pressure indication was via a homemade U-tube manometer.

The right blower had not yet been found.



Version 1 was created.



Since the display was not easy to read, version 2 followed with a continuous front panel and an inclined plane for the switches and the display.

Now the display could also be read from above. But there were still some improvements missing.

The top layer of the working plate was replaced by robust black saddler leather and a connector for a remote start was added.



Furthermore, the holder for microphone goosenecks was moved from the side to the back in the center and a microphone was installed in the blowhole. The USB output completed the equipment.

The **AKKOtune compact** tuning table (**ATc**) replaces all previous tuning tables with manual or foot-operated bellows.

The reasons for the development were:

- handling and manual power required to generate the air flow
- uneven generation of the air pressure
- poor reproducibility of the air pressure
- limitation of the air flow by the bellows volume
- no electronic measurement of the air pressure present

A solution had to be found that could adjust the air flow, and the pressure had to be large enough to play an accordion loudly as well. The air pressure generated had to be measured at a suitable point and shown on a display. Furthermore, the blowing direction had to be reversible quickly, because this would allow the chromatic reeds sitting on one reed plate to be compared very quickly by listening – and of course for diatonic instruments.

Since such a blower produces some noise of its own, measures had to be taken to dampen these sound components and to place the sound produced by the reeds far in the foreground.

This has all succeeded from the first version.

Now **ATc** is built in Version 4.

This has brought about some changes:

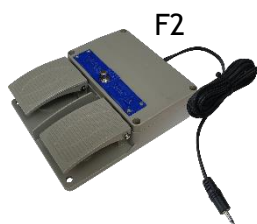
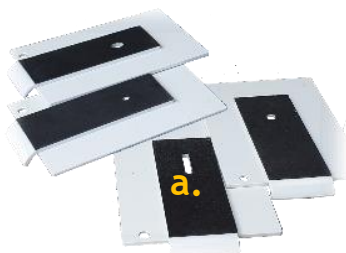
- Replacement of the manual mechanical air changeover with lever by an electromechanical air changeover with servos and actuation via pushbuttons
- Use of microcontrollers for the control of air stream and air pressure
- Optional integration of microphones for the generated sound both with airflow directed inwards and outwards - i.e. with PULL and PUSH - and sound output via USB port
- New control panel with extended air control options, remote control connection and main fuse

The top layer of the working plate made of robust saddle leather, the exchangeable blowhole inserts, the fastening options for the accessories and the practical size of 60 x 38 x 20 cm (W x D x H) have remained. Reed blocks can be placed directly on the various interchangeable blowholes and measured. And the inherent noise of the tuning table is very low.

AKKOfune compact Version4 System (ATc_V4)



Mikrofon-Auswahl
und USB-Ausgang



X1 AKKOfune compact

Tuning table for reed instruments

- with electronically controlled air stream
- with electronic pressure display
- with quick PUSH/PULL change-over
- with leather coated top plate and
- 9x M6 threaded inserts for accessory fixation
- with swappable blow hole inserts
- with remote start option

X2 AKKOfune compact USB

Tuning table for reed instruments with integrated microphones

- with electronically controlled air stream
- with electronic pressure display
- with quick PUSH/PULL change-over
- with leather coated top plate and
- 9x M6 threaded inserts for accessory fixation
- with swappable blow hole inserts
- with remote start option
- with microphone inside the blow hole
- with gooseneck microphone
- with microphone selection panel and USB port

Accessories in standard delivery for ATc_V4 and ATc_V4 USB

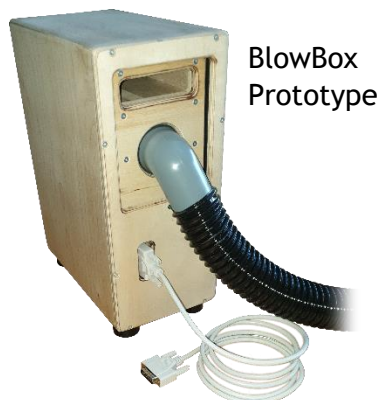
- 4 Blow hole inserts, round 8, 14, 50 mm, slot 8x35 mm
- 1 Reed block guide, plain version
- 2 hold-down for left and right side, for instrument fixation
- 2 M6 star grip screws for accessory fixation
- 1 Fixation bracket for "halved" instruments
- 1 External PSU, 12V, 6000mA, with 1,5m cable and switch
- 1 Equalization foam mat
- 1 User Guide

AKKOfune compact Accessories

- AKKOfune foot switch ATc 1 F1
for use with AKKOfune compact
 - with 1 Pedal for temporary Wind-STOP
 - AKKOfune foot switch ATc 2 F2
for use with AKKOfune compact
 - with 2 Pedals for starting PUSH / PULL
 - with 1 stomp button for STOP
- with 1 cable, 1.5 m each

AKKOfune modular System (ATm)

After **AKKOfune** compact was successfully used by those setting up a new tuning workstation, they also needed a way to upgrade existing workstations to use the latest technology.



BlowBox Prototype

First, a way had to be found to dampen the inherent noise of the blower as much as possible. For this purpose, the actual BlowBox is placed in a damping housing.

Since an external box connected via a cable needs a potent controller, it was developed using microcontrollers and software.

The **CONTROL** unit is equipped with connections for external pushbuttons and foot switches. The system is powered by an external power supply. The color display allows the selection of different operating modes in many different languages.



Latest improvements: Software, damper housing and air control with 2 digital servos instead of 4 before.

The system is used to upgrade existing or build new tuning workstations. This is done as follows:

An airflow generator, the **BlowBox**, is placed under the work table and connected to the under-table flange by an air hose. This flange is located under a blow hole in the worktable, through which the blown air flows out, or is sucked in (PULL/PUSH).

The BlowBox is controlled by an operating unit **Control** and is connected to it by means of a cable. The power supply for the ATm is provided by an external power supply unit connected to the control unit.

ATm is characterized by the fact that the air pressure can be preset and is built up at the start of the air flow until it is reached - this applies to both PUSH and PULL. After that, the pressure is regulated to the set value, i.e. it remains the same even if the load varies.

There are different modes of operation, e.g. also one in which the regulation is switched off and the pressure can be slowly increased manually to check the response of the reeds. The measured PUSH or PULL pressure, is shown on a display.

Furthermore, there is the remote start mode, where you can control the system via external buttons, such as a foot switch.

The special accessory AKKOfune DESK can also contribute to the construction of a new tuning workstation. This work plate corresponds to the design as with AKKOfune compact, but can be placed independently. A version with integrated microphones and a USB port is DESK+. The DESK worktops offer the possibility to use the accessories for AKKOfune compact.

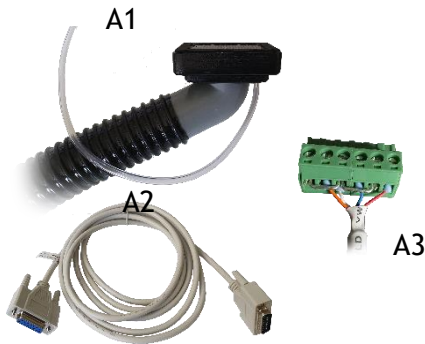


AKKotune modular System (ATm)

The System comprises the components **X3** and **X4**



Druckmessschlauch



- X3 *BlowBox ATm* wind generator**
- Dimensions: H 365 x W 165 x D 285 mm
 - Weight: approx. 8 kg
 - Noise: <2dB/<9dB over environmental noise
 - Air stream connection: Ø 2", swiveling
 - Control valves: electronic, servo-controlled
 - Air power: 1280 Pa max. static pressure
 - Usable pressure range: approx. 0,2 - 9.9 mbar

- X4 *Control ATm* control unit**
- Dimensions: H 120 x W 180 x D 64 mm
 - Display: color LCD, 1.8 "
 - Pushbuttons: 3x: Air UP, DOWN and STOP
 - Rotary knob: unlimited 360°, with pushbutton
 - Switch: System ON/OFF
 - Power Supply: ext. PSU 12V DC, 6000 mA

Accessories in standard delivery

- A1 Under-table air flange, with pressure probe and 1,5m flexible silicone pipe
- A2 Connection cable from control unit Control to the wind generator BlowBox
- A3 2x3 pluggable terminals for connecting external contacts/pushbuttons
- A4 One SD Card memory with all language versions for the display
- A5 Mounting instructions
- A6 User guide

AKKotune modular special accessories

- B1 External Pushbutton Panel, incl. 2m cable
3 pushbuttons, mounted on one plate 100 x 50 mm
- B2 Desktop Pushbutton Panel
with flat electronic Pushbuttons
for Start PULL, Start PUSH and STOP
- B3 Foot switch with 2 electronic Pedals
for Start PUSH or PULL (STOP with pedal release)
with 2 m connection cable
- B4 Desktop enclosure for *CONTROL*, with small tool tray on top,
with 3 additional pushbuttons on left side.
Can be placed left or right hand on the work bench.
Connections go away downwards.
Dimensions: W 230 x D 140 x H 160 mm
- B5 -8 to -15, 2" air hose with end sleeves, 80 cm – 150 cm long

AKKOfine modular LE (ATm_LE)

A customer requested a system that could be controlled by one foot to change both the wind direction and the wind strength.

It should serve to enable a harmonica player (diatonic), who had an accident with his motorcycle, to practice his hobby again in spite of a handicap with only one arm and one leg..



The development of a foot control and the BlowBox led to the result that such a technically reduced version can also be offered as LE variant (Lean Edition)..



Latest improvements:

Control panel with status LEDs, new control electronics with microcontroller and power shutdown, new digital servo with higher torque, new noise damping housing.



X11

Like the AKKOfine modular system ATm, *ATm_LE* is used for upgrading existing or setting up new tuning workstations.

The focus in the development of the system was on reducing cost-intensive components. The main control electronics are a part of the BlowBox and are controlled by a simple plain control panel.

The BlowBox is housed in a surrounding enclosure for noise reduction.

The desired air pressure is set by rotary control, but is not automatically readjusted when the load changes. There are start buttons for PUSH/PULL and a STOP button, as well as a rotary control for switching the system On/Off the and blower control.

Optionally, the control panel can be supplied with a large air pressure display. In this case, the control panel is connected to the pressure probe in the under-table flange with a flexible hose.

This flange is the same as for ATm, as are the air hoses used in various lengths. Since the main electronics are located in the BlowBox, the external power supply is also connected there. At the back of the BlowBox you can also switch the system on and off and reverse the blowing direction. When using the optional X16 foot control, there is no need for an additional control panel..

- X10 **BlowBox ATmLE** Wind generator with control
- Dimensions: H 350 x W 220 x D 260 mm
 - Weight: approx. 6 kg
 - Noise min/max: <2dB/<9dB over environmental noise
 - Air connection: Ø 2“, straight, on front and back
 - Air control valves: electronic servo-operated
 - Air power: 1280 Pa max. static pressure
 - Usable pressure range: approx. 0,5 - 11 mbar
 - Connections: 12V DC Input, control panel
 - Control elements: ON/OFF, air stream reverse
 - Indicators: LED Power, LED Servopower
 - With connecting cable for control devices: (X11, X12, X14, X15, X16), 1,8m

- X11 **Control panel ATmLE 1**
- With rotary knob: for switching ON/OFF and setting wind power
 - with LED: Indicator for operat. readiness
 - with three pushbuttons: Wind control
 - Dimensions: H 80 x W 150 x D 60 mm
 - Wall mount-: 2 eyelets on the back
 - Connectors: BlowBox ATmLE
12V DC output for **AKKO**bar
 - Weight: 0.15kg

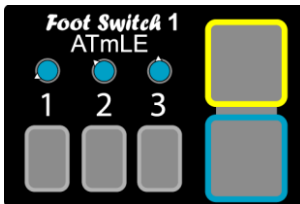
AKKOfine modular LE



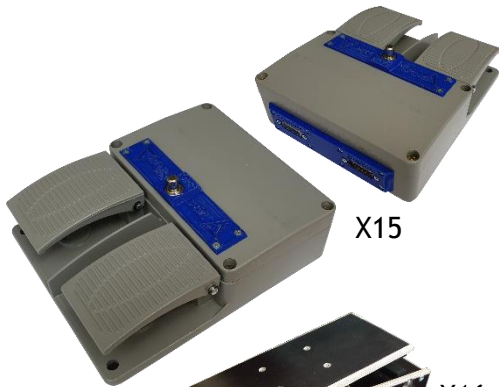
X12



A1



X14



X15



X16



B5



B6

X12 Control Panel ATmLE 2

Like ATm_LE1, additionally with:

- Air pressure display large display
- Press. measuring hose, approx. 150 cm, 4mm transparent, hose nipple
- Connectors: BlowBox ATmLE, pressure measurement hose
- Weight: 0.24kg

A1 Under-table air flange,

with pressure probe and 1,5m flexible silicone hose
45° angled and 360° pivotable

Options / Accessories

X14 Foot switch ATmLE 1

for use - without - X11 or X12

- with rocker switch for wind direction control and STOP
- with three stomp buttons selecting the wind power
- with three rotary knobs for presetting the wind power
- with LED for operational readiness

X15 Foot switch ATmLE 2

for use with X11 or X12

- with two stomp buttons for wind direction control
- with two stomp buttons for switching wind ON/OFF
- with forwarding port for X11 or X12
- with connection cable for BlowBox X10, approx. 75 cm

X16 Foot Controller ATmLE

- Rocker control for wind power and direction
- with connection for BlowBox ATmLE X10
- From the center detent of the foot rocker tilted forward or backward results in a continuous increase in wind force. Tilting forward sets the BlowBox to blowing, tilting backward sets it to sucking. This can be reversed by the reverse switch on the BlowBox.

B5 Air hose for connecting the BlowBox with a flange.

- Both ends with a sleeve for attaching it on a 2" flange pipe
- available lengths, with 2" inner diameter:
0.8 m = B5-8, 1 m = B5-10, 1.2 m = B5-12, 1.5 m = B5-15

B6 Noise Damper

to be attached on the rear air exhaust of BlowBox ATmLE X10.



X7

Why is the sound and even the pitch of a reed is different when operated inside an instruments body, compared to being blown outside? It's because the resonant volume of the instrument's body affects the reed's vibration behavior. In order to make it easier to test and tune reeds as if they were mounted inside the body we developed AKKOflip.



X8

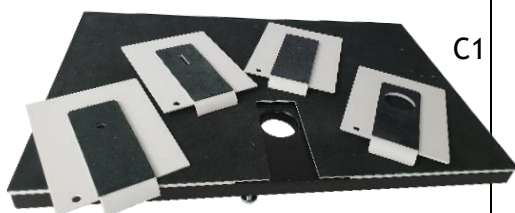
By just flipping a reed block on a plate out from the "body" it is easily accessible and can be worked on.



X9

YouTube -> akkoflip

The purpose of AKKOtune DESK is to provide the same options when setting up or modifying a tuning workstation as are available for AKKOtune compact.



C1

X7 **AKKOMbar** external Air Pressure Display for tuning for use with A1 / hose nipple

Desktop measuring device for air under/over pressure in under-table flange or bellows -> (hose nipple)

- Rear connectors: pressure hose, 12VDC PSU
- Large backlit display with 14 mm high digits.
- With rotary knob for zero point adjustment.

X8 **AKKOflip** In-Body-Simulation for reed blocks tuning like a pro - as inside the instrument

- For reed blocks of up to 42 cm length
- Reed blocks to be tuned inside a resonance volume
- With quick-holder for the reed block
- When opened, the reed block is presented in front of you - ready for tuning
- with swivel-in-cassotto
- with 2 star-grip screws for fixing the box on the worktop

X9 **AKKOflip** In-Body-Simulation for reed blocks **USB** tuning like a pro - such as X8

additionally:

- with microphone in the resonance volume
- with microphone in front of the cassotto
- with MicSelection Box and USB port

C1 **AKKOtune DESK** Worktop with interchangeable blow hole inserts

- coated with leather, incl. 5 blow hole inserts holes: round (mm): 8-12-14, square 10, slot 8x35
- with 9x M6 fixation threads
- with 2x side hold-downs with instrument fixing bracket
- with 2x M6 start grip screws for fixation
- with plain reed block guide
- with foam mat for bellows' rim unevenness compensation
- Dimensions W 600 x D 380 x H 30 mm
- Under-table flange as A1 not included.

C2 **AKKOtune DESK+ USB** Worktop with interchangeable blow hole inserts

- Such as C1, additionally:
- with 1x microphone inside blow hole
- with 1x goose neck microphone for rear mounting
- with MicSelection Box and USB port

AKKOfune DESK Spares / Special Accessory

Therefore, the AKKOfune DESK accessories are the same as for AKKOfune compact. AKKOfune DESK / DESK+ has an additional cover on the underside and holes to accommodate an under-table air flange. At the front is a lock for the blowhole inserts

When developing a way to tune single reed plates, the goal was to find a flexible solution.

The holder for a single reed plate must not only fit certain dimensions, but the holder must also be adaptable to the various dimensions of all reed plates.

The corresponding holders were designed as blowhole inserts and also as stand-alone devices, so that they could also be used on workstations with a single blowhole.

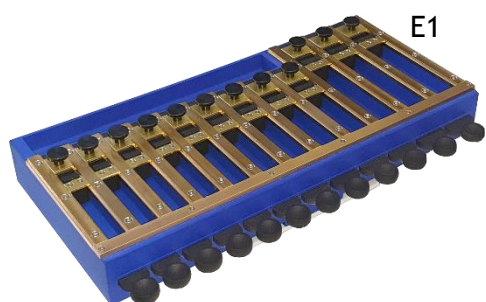
After various precursors, a holder for 3 identical reed plates with a certain width tolerance was developed. One can test a two- or three-voice tremolo with it. Reed plates with widths of 15-17mm and a length of up to 60mm fit into the brass tracks.



To be able to test and tune all single reed plates, the multi reed plate holder for 10 different reed plate widths and lengths up to 90 mm was developed. It allows up to three narrow reed plates to be held simultaneously in order to tune the tremolo. Each reed plate is activated with its own air slide.

- D1 add. Blow hole insert acc. to customer requirement
 - e.g. other blow hole diameter or several blow holes
- D2 add. equalisation foam mat
 - for compensation of unevennesses when placing a „halved“ instrument
- D3 spare leather cover for AKKOfune compact or AKKOfune DESK(+)
 - robust saddler leather, black
 - ready punched and cut out, with adhesive tape.
 - With application hints
- D4 fixation bracket for Bandoneon
 - Extra-long legs for placing the hold-downs
- D5 Reed block guide with sliding hold-down
 - incl. 1 set of accessories
- E1 **Multi-Reed-Plate Holder (MRPH)**
 - adjustable Holder for reed plates of 15-25 mm width and and 20-95 mm length, flat brass guide rails enable tuning of reed within the holder
 - reed plate guide can be closed completely, and up to 3 reed plates can be blown side by side (tremolo tuning).
- E2 **Triple Reed Plate Holder (TRPH)**
 - adjustable Holder for reed plates of 15-16 mm width flat brass guide rails enable tuning of reeds within the holder
 - reed plate guide can be closed completely, and up to 3 reed plates can be blown side by side (tremolo tuning).
- E3 **Helikon Reed Plate Holder (HRPH)**
 - für Stimmplatten von 25-35/40-55 mm Breite und 80-100 mm Länge. Flache Messing-Führungsschienen ermöglichen das Stimmen direkt im Halter.
- E4 **Bandoneon Reed Plate Holder (BRPH)**
 - with lateral air seal by PU foam cushions and clamping slider
 - adjustable for various plate widths
- E5 **Bajan Reed Plate Holder**
 - such as E4, adapted to the sizes of the bayan reedplates
- E6 **Harmonica Reed Plate Holder**
 - such as E4, adjusted to the size of the harmonica.

AKKotune DESK Special Accessory

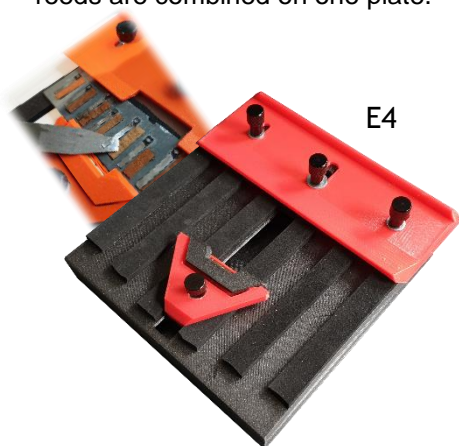


Testing and tuning helicon basses requires an additional resonance chamber and a variable width setting, while the length of the reed plates is always the same.



2-fold and 4-fold reed plates can be used - the width is variable.

In reed plates for bandoneons and bayan instruments, many reeds are combined on one plate.



To blow a single reed, it must be placed over a slot and isolated from the neighboring reeds. This is done with our reed plate holder via PU foam strips and a slider that clamps the plate and directs the airflow. Opposite, the plate is pressed onto the PU foam by a guide. Both guides are variable in their angular position.

Prices in Euro, ex works, excluding VAT

X1	2'300,-	ATc V4	F1	45,-	FS ATc 1
X2	2'610,-	ATc USB	F2	109,-	FS ATc 2
X3	1'080,-	ATm BlowBox	A1*	130,-	Flange
X4	795,-	ATm Control	A2*	27,-	cable
X7	299,-	AKKOmbar	A3*	10,-	terminals
X8	695,-	AKKOflip	A4*	27,-	SD-Card
X9	885,-	AKKOflip USB	B1	48,-	ext. pushbuttons
X10	995,-	ATmLE BlowBox	B2	162,-	DT pushbuttons
X11	175,-	ATmLE 1	B3	165,-	FS ATm
X12	395,-	ATmLE 2	B4	170,-	ATm DT enclosure
X14	275,-	FS ATmLE 1	B5-8	30,-	air hose 0.8 m
X15	135,-	FS ATmLE 2	B5-10	33,-	air hose 1.0 m
X16	695,-	FC ATmLE	B5-12	37,-	air hose 1.2 m
C1	335,-	DESK	B5-15	42,-	air hose 1.5 m
C2	645,-	DESK+ USB	B6	65,-	Damper
E1	1'040,-	Multi-RPH	D1	52,-	add. blow hole
E2	260,-	Triple RPH	D2	17,-	foam mat
E3	480,-	Helikon RPH	D3	105,-	spare leather
E4	399,-	Bandoneon RPH	D4	95,-	Band.-bracket
E5	449,-	Bajan RPH	D5	199,-	guide w/ Options
E6	399,-	Harmonica RPH	D6	109,-	goose neck

RPH = reed plate holder

* in standard delivery of Atm

AKKO
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