

## **A guide to graduate, professional, vintage and large Flutes (Aug 2024)**

### **Graduate Flutes**

'Graduate' is a term used to describe instruments that are a step up from advanced student instruments. They are aimed at students studying beyond grade 8; professional teachers; and the serious amateur performer.

Whereas 'Advanced Student' instruments are usually the student body and foot-joint fitted with a solid silver head-joint; graduate instruments are superior instruments. Graduate Flutes are fitted with a mechanism that has been manufactured to a higher tolerance than would be seen on a student Flute. The keys are finished to a higher standard and are a better fit to the screws and rods and this means that there is less 'play' on the keys i.e. they do not wobble; with less play in the mechanism the Flute feels more 'positive' and the pads can be seated to a higher standard, also there is less noise from the mechanism and the mechanism will last longer before it starts to wear.

Graduate Flutes have, at minimum, a solid silver lip-plate, and usually a solid silver chimney (the very short tube that joins the lip-plate to the head-joint, also sometimes called a riser) this is partly because the silver plating on these areas would quickly corrode with the amount of use a graduate Flute gets, but mainly because the solid silver lip-plate helps prevent the lower lip from slipping away from the embouchure hole, and the solid silver chimney allows for the embouchure hole to be hand finished which can enhance the sound of the Flute.

Graduate Flutes often have a solid silver head-joint which avoids plating wear, helps prevent the lower lip from slipping, allows for hand finishing of the embouchure hole, and also means the head-joint can be worked to the shape of the design mandrel more accurately (the silver itself is also said to enrich the tone). Some Graduate flutes even have a solid silver tube (head-joint, body, and foot-joint) to further enrich the tone and remove the possibility of the bore of the flute being compromised by plating wear, however solid silver tubes are less robust than standard silver-plated tubing so the mechanism is slightly more vulnerable. Uniquely Trevor James have a range of wooden head-joints that can be used with their Graduate Virtuoso model (sold with solid silver head-joint) and in the past they used to give the option of a silver head-joint fitted with a wooden lip-plate and chimney which they claimed made the flute particularly suitable for music from the Baroque and Classical eras.

Buying a graduate flute offers the opportunity to switch to an 'open-hole' flute; some players prefer the sound of an open-hole flute and it allows for 'half-holing' of some notes (where the player deliberately shades or slides a note). Playing an open hole flute forces the player to locate their fingers more accurately, which can improve technique; because the placement of the finger tips is more critical the player should try open hole flutes with in-line G keys and also flutes with off-line G keys to find which is more comfortable for them (split E mechanism is available for either type).

Some manufacturers produce a complete range of instruments from student, through advanced student, up to graduate or professional level; other manufacturers entry level instruments are advanced student or graduate instruments. The manufacturers currently supplying the UK market with graduate instruments include Altus, Azalea, Azumi, Di Zhao, Haynes, Miyazawa, Muramatsu, Pearl, Powell-Sonare, Sankyo, Trevor James, and Yamaha, and so there are dozens of models in the 'graduate' bracket. If the player is not studying music at a music college, then they should start by trying out graduate instruments made by the same manufacturer as the student instrument they already own, and then compare those instruments to other graduate models made by other manufacturers. If the player is looking to buy a graduate instrument to study diploma or degree level at a Music College then it is worth checking out which instruments the music college expects the students to be using.

## Professional Performer's Flutes

These instruments are manufactured to a superb standard. Precious metals, special alloys, select woods, or newly developed composite materials are used in the head-joint and/or body of the instrument. The rods that the keys move on are made of very hard steel to reduce wear and the keys may be made (largely) of solid silver so there is no worry of corrosion of silver plating; handmade Flutes sometimes even incorporate gold or platinum into the Flute and the lip-plate may be engraved as an additional measure to help prevent the lower lip from slipping.

The mechanism on professional Flutes is made to the highest tolerances possible and the padding is to the highest standard possible often using top grade pads and special pad backings. Commercial Flutes are often hand finished to some extent and some players will go as far as having Flutes hand-made by individual makers.

If a player is used to playing the manufacturer's corresponding graduate model then they should start by trying professional instruments by the same manufacturer, and then compare those instruments to other professional models made by other manufacturers. A player considering buying a professional Flute will probably already own a graduate Flute. Provided the graduate Flute is in good condition it is worth experimenting with professional head-joints fitted to their existing Flute because the player may achieve the sound they wish without having to buy a new Flute.

Professional Flutes are often available with keys and mechanism in addition to the standard (Western) Boehm key mechanism (note that in some parts of the world the standard Boehm mechanism has an open G# - so the left-hand 3<sup>rd</sup> finger plays G# and the little finger plays G - and also the thumb levers are reversed - so the touch-pieces for the Bb and B are swapped round).

**Low B foot-joint:** the foot-joint is extended and has an additional touch-piece to play Low B. Also the player can achieve a better top C by depressing the B key only (via a raised spatula key sometimes referred to as the high C facilitator). Note that Haynes even manufactured a flute with a Low Bb but this additional key will reduce the reliability of the foot-joint keys to some extent.

**Roller keys:** The Low C key on most flutes is a roller key (and so is the Low B key if there is one); but the Low C# and/or the D# touch-pieces can also be fitted with rollers to ease the movement of the little finger.

**G/A trill key:** This additional trill key is sometimes added to a flute with a split-E mechanism because the addition of the split-E mechanism makes the third octave G/A trill difficult. Two extra small tone holes are positioned on the body; one is to the left of the G# key the other is to the left of the thumb key. The trill touch piece is usually next to the first trill key and when both trill keys are used together an easy G/A trill is achieved.

**C# trill mechanism:** An extra tone hole is positioned to the left of the thumb key. The covering key is sprung shut and is opened by a lever usually positioned next to the 'Bb lever'. This key allows an easy B/C# trill and Bb/C# trill in the first two octaves (instead of using the index finger and thumb). This key also has the advantage that, on a flute with a split-E mechanism, it can be used in conjunction with the first trill key to give an easy G/A trill in the third octave; because of this it is more common than the G/A trill mechanism.

**Pin-less system:** The manufacturer Pearl has designed a mechanism where 'clutch' pins are not needed. Usually the E, F, and F# keys are bound together as the 'Right hand action' assembly and the A & Bb keys are bound together as the 'Left hand action' assembly. During servicing or repair the assemblies are removed from the flute but not taken apart (the clutch pins keep them locked) unless necessary. In the 'pinless' mechanism the assemblies are easily taken apart - which makes it much easier for a technician to isolate and deal with any mechanical problems that might be found with the individual keys on the assemblies.

**'Brogger' system:** The manufacturer Miyazawa fit the 'Brogger' system to their flutes - this is a further development of the 'pin-less' mechanism described above with the additional of relocating the adjusting screws to make them function better, and also relocating the springs so that the springing is more balanced.

**‘Kingma’ system:** In addition to the standard open-hole Boehm mechanism (with added C# trill) the Kingma system incorporates six extra keys making it possible to play the complete chromatic quartertone scale and all the chromatic multi-phonics.

Professional flutes sometimes make a feature of the following alternative methods of flute construction.

**Seamed tube:** The tubing for a flute can be produced by either 'seaming' or 'drawing'. A 'seamed' tube is produced by taking a flat piece of metal, wrapping it onto a cylinder mandrel and then soldering the two edges together along the 'seam'. This was the original method of producing metal bodied flutes and some players feel the seamed tube produces a different sound so some seamed flutes are still made. 'Drawing' a tube is done by taking a flat disk of metal and 'drawing' or 'pulling' the material in to a tube shape using pressure; this has been the common manufacturing process and obviously the tube is much less likely to split.

**Soldered or drawn tone-holes:** 'Drawn' tone-holes are created by a tool which pulls small tubes out of the main body; these tubes are then trimmed to form the tone-holes (and the metal is usually rolled back on itself to create the tone-hole rims) upon which the key pad sits. Soldered tone-holes are produced from separate tubes of metal and are soldered onto holes cut in the body; the maker may or may not roll back the edge of the tone-hole to create a rim. The advantages of soldered over drawn tone-holes are that the soldered tone-holes don't cause thinning of the body tubing (which arguably distorts the acoustic properties of the tube) and the tops of the tone-holes are more likely to remain flat (although drawn tone-holes can be 'trued' flat if they start distorting).

**One piece body:** The body of a flute is usually in two parts – the main body and the foot-joint. The German company Braun make wooden (Boehm) flutes with a one-piece body. The advantage of this is the resonance of the tube is not distorted by the 'break' in the tube where the body tenon meets the foot-joint socket. These flutes are handcrafted so presumably the prospective purchaser is involved in the design of the location of the D#, C#, C touch-pieces (normally the player would rotate the foot-joint to position these touch-pieces to suit their little finger).

## **Vintage (Soprano) Flutes (standard Boehm system)**

There have been many models of Flute intended as student, graduate, or professional instruments that are no longer manufactured or are over 30 years old. The student models are usually of poor quality however, the graduate and professional models (which were manufactured to higher standards) can still be desirable instruments.

These older models of Flute are sometimes referred to as 'Vintage' Flutes. The problem with older Flutes is the wear on the mechanism. The mechanism on a Flute is more critical to its operation than on any other woodwind instrument. Not only were older Flutes manufactured to lower tolerances than today but they also have years of wear. A player might find a vintage Flute that produces a lovely tone but the mechanism will not feel as positive as a modern Flute. The player either accepts the limitations of the instrument as it is or has expensive re-building work done (probably by a Flute maker).

## **Play-testing a Flute before purchase**

If a player is not looking to upgrade (i.e. is thinking of trying other flutes of a similar quality level to the Flute they already have) it is important to ensure their existing Flute is playing well. Commonly players compare a new Flute (which should be in good condition) to their own Flute (which is not); instead of comparing Flutes they are actually comparing the condition of the two Flutes. If the player's Flute is in good condition (i.e. it fully serviced less than a year ago) then they can truly assess the differences between the Flutes.

Ensuring their existing Flute is playing well is even more important when testing head-joints – a player might select a head-joint because it alleviates a problem that would otherwise be solved by having the instrument serviced, what is more, once the instrument is serviced the player might find the head-joint disagreeable.

## **Large Flutes (Alto & Bass)**

There has been greater interest in Alto and Bass flutes in recent years. It is worth noting that whereas soprano flutes are more or less of standard design, Alto and Bass flutes vary significantly, so it is important that players try different models.

Important points to note:

- finger positions can vary between models
- the 'spring balance' can vary between models (ideally the finger pressure to press down the open keys feels fairly even)
- instruments can vary in weight
- curved head-joints usually do not have good as tuning as straight head-joints
- there can be significantly differences in the diameter of the bore so head-joints are less interchangeable

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