

# The Alma Denture Gauge



ALMA

The measure of successful dentistry



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INNOVATIONS

The Alma Denture Gauge provides a unique and essential method to define and reproduce denture tooth position, which not only accurately determines bite rim size but simplifies initial set-up and also greatly improves processing techniques.

- **It helps define tooth position by pinpointing the tips of the incisor teeth, relative to the papilla, by means of a vertical and horizontal measurement prescription.**
- **Transfers information as numerical readings between surgery and laboratory via the Alma Gauge sleeve template.**
- **Determines the full width of the arch by using the sleeve template.**
- **Prescribes bite rim sizes.**
- **Prescribes the position of the teeth for try in.**
- **Allows the technician to customise each stage of the work to prescription.**
- **Allows easy checking of the flasking procedure for accuracy.**
- **Makes for easy evaluation of relines, rebases, and copy dentures.**
- **Assists in duplicating techniques where required.**
- **Permits old worn dentures to be improved and modified where required and not simply to be used as a copying system.**

A patient's smile and the function of their dentures are essentially determined by the position of denture teeth within the oral cavity. Correct positioning will also enable clear speech and when placed to support the lips can make a marked difference to the apparent age of the face. During the first appointment an initial estimate of the tooth position should be established. This should be confirmed at the occlusal record stage when speech can also be tested.

The Alma Denture Gauge provides a simple to use but essential means to take horizontal and vertical measurements of the existing denture relative to the incisive papilla. These measurements can then be recorded, referenced and transferred to the laboratory for accurate denture production.

Use of the Alma Denture Gauge not only helps in the provision of better and more accurate dentures but also saves time in virtually eliminating rework caused by tooth positional error. When used in conjunction with the Alma Bite Gauge and the Alma Bite Plane, accurate and consistent results can be achieved.

## Measurement Procedure

At the first visit assess the vertical and horizontal positions of the incisor teeth from the existing denture using the Alma Denture Gauge. (Fig 1). The Alma Bite Gauge can now be used to determine the vertical dimension and Free Way Space.(Fig 6). Any corrections can now be made, as necessary, to the measured prescription. In the laboratory the technician produces an occlusal rim of precise dimensions using the working impressions, the sleeves provided and the laboratory Alma Denture Gauge.

At the next surgery visit the usual occlusal records are taken. In addition, because the rim is precise, with minimal excess thickness, tooth positions can be checked and speech tested at this stage, reducing re-tries and the subsequent need to reset teeth. Any adjustments are recorded using the Alma Denture Gauge.

This simple measurement procedure ensures a set-up that will require fewer adjustments, saving not only time, but also resulting in greater patient satisfaction.

### Taking Alma Denture Gauge readings - upper denture

1. Place a disposable sleeve on the Alma Denture Gauge base (Fig 2) and position the denture central on the gauge base with the anterior teeth facing towards the vertical leg.
2. Engage the stylus point in the incisive papilla depression in the acrylic base by pushing down on the black stylus handle (Fig 1) and read the measurement on the vertical (Vmm) scale, below the stylus handle and the horizontal (Hmm) scale. (A reading of V10/H8mm indicates that the incisal edge of the central teeth is 10mm on the vertical scale and 8mm on the horizontal scale from the incisal papilla).
3. Record the measurements onto the disposable sleeve and laboratory sheet.(Fig 2)



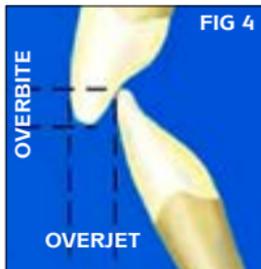
4. With the stylus point in position draw the outline of the denture onto the sleeve using the pen provided. This will record the position of all the teeth round the arch. Write on the patient's name and any amendments required. (Fig 2) Adjustments to the teeth position can also be recorded onto the sleeve.

### Taking Alma Denture Gauge readings - lower denture

1. Proceed as for upper denture with the following additional steps when required.
2. If there has been resorption of the mandible since the lower denture was fabricated, take a relined type impression inside the fitting service. Then take the Alma Denture Gauge readings both vertical and horizontal. (Fig 3)
3. If the central position is not obvious proceed as described later under 'Weak or flat incisive papilla'.
4. When prescribing an overbite relationship (Fig4), it is necessary to reduce the vertical (Vmm) height for the lower bite rim by the required overbite, say 2mm, thus giving a bite rim vertical height 2mm less than the original or desired denture. This 2mm overbite will be reintroduced at the later try-in stage. Typical prescription; V8/H4 (bite rim), V10/H4 (try-in). In the case of an edge to edge bite (Fig 5) the vertical height measurement, taken from the original denture, can prescribe the bite rim.
5. Send the sleeve(s) to the laboratory together with the impression(s), face bow readings and other information.

### Making changes to existing dentures

If the vertical height or freeway space is considered unsatisfactory in existing dentures, or the positions of the teeth require changing, this may be achieved as follows;



1. Measure the existing vertical height using the Alma Bite Gauge (Fig 6). Calculate an adjustment to give a satisfactory height or add beading wax to the existing teeth. (Fig 7)
2. Adjust the labial position and tooth length, also by using the beading wax.
3. When both dentist and patient are satisfied, take Alma Denture Gauge readings as above of the modified dentures.(Fig 8)
4. Instruct the laboratory to construct occlusal rims to the modified vertical and labial positions.(Fig 9)



### **Occlusal rim try-in in surgery**

1. Try in the occlusal rim and make adjustments in the usual manner. Because the rim will have been constructed more precisely the time taken for adjustments should be less.
2. Adjust the plane of contact of the opposing rims using the Alma Bite plane.(Fig 10)
3. Record the usual details such as the smile line, centre line etc.
4. Check proposed tooth position and test speech at this early stage, reducing patient visits for re-tries and the subsequent need to reset teeth. Record any adjustments using the Alma Denture Gauge.

### **Try-in in surgery**

1. Try the teeth in the mouth and check for correct vertical dimension with the Alma Bite Gauge, visual appearance etc.
2. Give any specific details for change in tooth position, if required, by means of adjusted Alma Denture Gauge readings and return to laboratory.

## **Fitting the finished case**

1. Check the final dimensions with the Alma Denture Gauge.
2. Fit the dentures in the usual manner and carry out final visual appearance checks to the satisfaction of the patient.

## **Laboratory Procedures**

There are a number of advantages for the technician when Alma Denture Gauge readings are taken. These are as follows;

- Prescription contains precise dimensional information with which to work.
- Occlusal rims can be more accurately specified and produced. On its return from the surgery the rim is likely to have been less altered and be more accurate, so reducing the number of further (and unpaid) re-try ins.
- Aids delegation in laboratory, since not only do juniors have a more precise prescription but senior technicians also have a template against which to check the work.

The denture flasking process can be checked against the precise prescription before return to the surgery and the processing accuracy can be proven in the case of doubt.

In conjunction with impressions, face bow readings etc. the Alma Denture Gauge is used in a laboratory as follows:

### **Occlusal rims**

1. Place the disposable sleeve on the base of the laboratory Alma Denture Gauge. This will have been marked up in the surgery. (Fig 4)
2. Prepare the occlusal rims using the V and H dimensions taken in the surgery and the marked up denture outlines drawn on the sleeves.
3. Use the Alma Denture Gauge to check and make any adjustments to the occlusal rims before sending them to the surgery. (Fig 9)

### **Tooth position for try-in**

1. Articulate the models in the normal manner.

2. Use the Alma Dental Gauge readings in order to precisely position the central anterior teeth both vertically and horizontally before returning the occlusal rims to the surgery.

*Note:* Any changes which have been made at occlusal rim stage can be easily incorporated since numerical values will be given e.g. change V10/H8 to V10/H9.

### **Final set up and processing**

1. After the try-in is returned, carry out the final flasking procedure.

*Note:* The Alma Denture Gauge permits changes to anterior tooth position to be specified as above in millimetres instead of information such as the teeth are too prominent.

2. After processing re-check the final set-up on the Alma Denture Gauge and also use it to confirm that no processing errors have occurred in the finished denture.

### **Weak or flat incisive papillae**

In some cases it may be felt that the shape of the incisive papillae is rather flat, or in the case of the mandible the central position may not be obvious. In this situation proceed as follows:

1. Before taking impressions use a tissue marking pen to mark a spot on the incisive papilla, which appears central in position in the patients mouth. If impressions are not taken then mark the existing denture instead.
2. Check that the mark has transferred to the impression before sending to the laboratory. The technician then repeats the process by placing a fresh mark on the model over the spot allowing it to be transferred onto the wax occlusal rims and later the try-ins (Fig 11). All Alma Denture Gauge readings performed using this technique are therefore taken from the same position.



**FIG 11**

## Denture duplication techniques

There are a number of well-proven denture duplication techniques in use, such as the Dundee technique and others. The Alma Denture Gauge can be used as an adjunct to these techniques whether or not any changes are required to the existing dentures.

1. Take the Alma Denture Gauge readings as usual(see taking Alma Denture Gauge readings - upper denture).
2. Record any adjustments, which are needed to the anterior tooth position.
3. Duplicate the existing dentures as usual.
4. Set up teeth to the Alma Denture Gauge readings for the changed or unaltered denture.
5. Confirm position of teeth using Alma Denture Gauge.

### To re-calibrate the Alma Gauge

1. Unscrew the indicator stylus cap(A) (See Fig 12) but do not remove it from the handle.
2. Push the indicator stylus handle down to the stop position(B). Check that the bottom edge of the handle aligns with the scale 0mm. If not turn the handle whilst holding the stylus itself firmly until it does (C).
3. Tighten the cap before releasing the handle and the vertical (Vmm) measurement will be accurate.

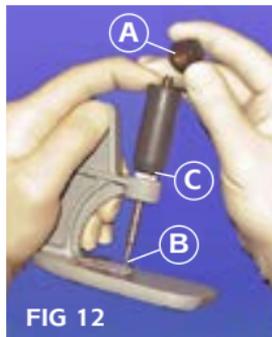


FIG 12



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