

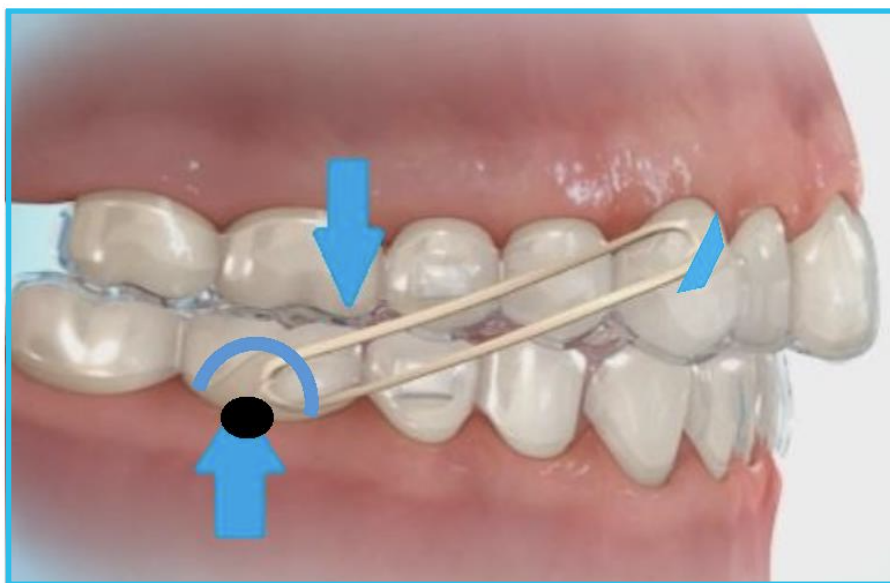
BUTTONS AND ELASTICS FOR CLEAR ALIGNERS

Buttons and elastics are used in orthodontics for anchorage control in certain types of movements. To place a button or an elastic, a cut must be made in the aligner which could come prefabricated by the aligner manufacturer or be made manually chairside by the treating doctor.

There are two types of cuts:

Button cutout that allows for a button to be bonded directly on the tooth.

Elastic hook or "slit" which allows for direct engagement of the elastic to the aligner.



For manual aligner cutouts, multiple cutout pliers are available in the market. These manual cutouts may be needed for in-office aligners or mid-treatment troubleshooting when a tooth is not moving as expected due to anchorage limitations.



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Buttons are bonded directly on a tooth for Class II or Class III molar anchorage or when the force needs to be used for “pulling” the tooth. Some examples are:

Canine distalization.

Premolar extraction closure.

Canine extrusion.

Crossbite correction.

Rotation on posterior round teeth.

Single tooth extrusion.

Elastic hooks are used on Class II or Class III canine anchorage or when the force is not required to pull on a single tooth however, the combination between button cutouts and hooks can be planned at the discretion of the treating doctor.

Buttons are available in different materials and shapes and the choice is at the treating doctor's discretion. Below are some examples of different buttons available on the market.



Metal buttons



Composite buttons



Other sizes, materials, shapes...

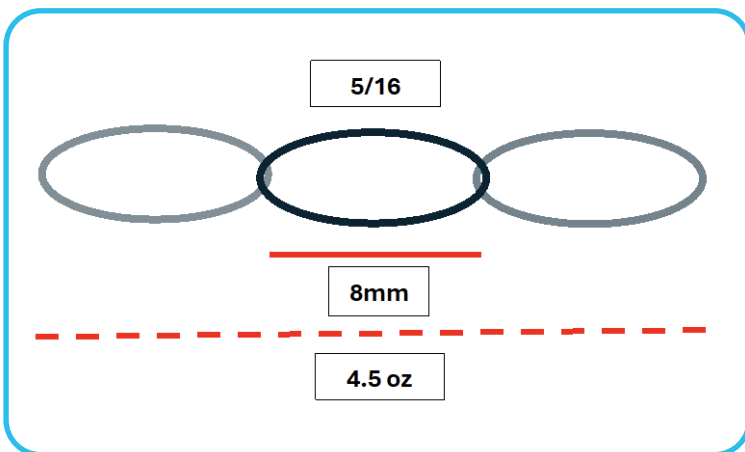
BONDING BUTTONS

Bond buttons as gingival as possible. It is recommended to insert the aligner when bonding the buttons on the teeth to ensure aligner clearance, leaving a 1-millimeter margin between the button and the aligner.

BUTTONS AND ELASTICS FOR CLEAR ALIGNERS

Elastics come in different sizes and strengths. Each manufacturer uses different labels to name the elastic types, but the size and forces are universal.

Size		Light 2.5oz	Medium 3.5oz	Heavy 4.5oz
1/8"	○			█
3/16"	○			█
1/4"	○			█
5/16"	○			█
3/8"	○			█



Elastics can be stretched 3 times its size and the force it reaches when stretched is given in ounces.

The size indicates the diameter of the elastics without it being stretched. The size can be read also in millimeters as explained in the table below.

1/8	3.2mm
3/16	4.8mm
1/4	6.4mm
5/16	8mm
3/8	9.5mm

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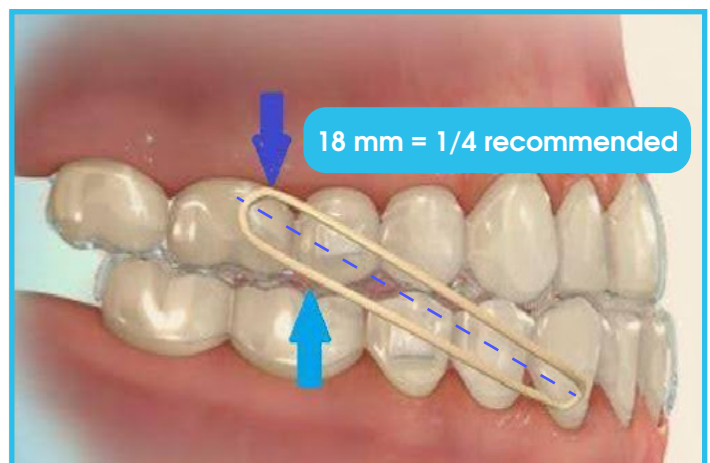
HOW TO CHOOSE THE RIGHT FORCE?

Follow the next steps to choose the right elastic size for your clear aligner case:

- 1 Always use 4.5 oz (heavy) force.
- 2 Measure the distance between each elastic insertion point.
- 3 Use the table above to choose the elastic size that is closer to the distance measure.
- 4 The example below illustrates how to measure the distance between each insertion point.
- 5 Use a Dynamometer for a more accurate force measure.
- 6 *Literature describes $\frac{1}{4}$ 4.5oz elastic as the one that fulfills most clinical situations.

*Mansour, A.Y., 2017. A comparison of orthodontic elastic forces: Focus on reduced inventory. journal of orthodontic science, 6(4), p.136.

Measure the distance between each insertion point, divide by 3 and choose the elastic size closer to the result.



EXAMPLES OF MOST COMMON ELASTIC USE

Size inches	Size mm	Condition
1/8	3.2mm	Triangular elastics / Single tooth extrusion
3/16	4.8mm	Cross elastics / Posterior box elastics
1/4	6.4mm	Extraction Class II/III cases
5/16	8mm	Class II/III non-extraction
3/8	9.5mm	Anterior openbite box elastics

BUTTONS AND ELASTICS FOR CLEAR ALIGNERS

ELASTIC WEAR

Elastics must be worn as much as possible to allow constant force for better tooth movements, however, on some occasions, they can be used only at nighttime. Some examples where elastics may be used only at night are the following ones:

- ✓ If the elastics inhibit speech.
- ✓ When Class elastics are combined with cross elastics, the cross elastics may be worn only at night.
- ✓ At the discretion of the treating doctor.

ELASTIC REPLACEMENT

- Elastics should be replaced every 12-24 hours to maintain their strength and elasticity.
- Elastics should always be used with the aligners in place and never without the aligners.
- A rubber band tool may be provided to the patients for easier elastic insertion-removal.

CLINICAL CONSIDERATIONS

Some cases with special characteristics or compromises may require lower elastic forces. Some examples that require more consideration and a possible multidisciplinary inter-consultation are the following:

Periodontally compromised patient.

Patient with multiple restorations.

Relapse cases with existing root resorption.

Patients with tooth sensitivity.

Post-surgical patient.

Medically compromised patient.