

This document applies to ORALITE® glass bead tapes (garment trims) that are heat applied. These instructions do not apply to ORALITE® glass bead tapes for sewing application. Products covered in this document:

- ORALITE® GP 025
- ORALITE® GP 025S (Segmented)
- ORALITE® GP 027

General Information

ORALITE® glass bead heat applied tapes are tough and flexible. The tapes are designed to be heat applied to suitable background fabrics for use on EN ISO 20471:2013 high visibility garments. Finished garments should read >330 SIA brightness at 0.2° Observation angle / 5° Entrance angle.

ORALITE® glass bead heat applied tapes should be applied using the recommendations below, however converters are also advised to determine which configuration best suits their substrate based on their individual equipment.

As there can be great variation in the background fabrics produced, variation in chemical treatments used on fabrics, variation in the fusing methods and equipment age and model and variation in the washing processes, it is important that these parameters are evaluated for each application, and it remains the responsibility of the user to test the specific fabric to be sure that the adhesion of ORALITE® GP 025/GP 25S is satisfactory on an ongoing basis and to select the best processing conditions.

It is strongly recommended that an ongoing quality system is in place to monitor the critical aspects of the heat lamination process, including temperature, time and pressure consistency and reflective material/background compatibility from lot to lot in order to ensure acceptable adhesion performance is maintained. For Technical Support please contact your ORAFOL representative.

It is strongly recommended to test ORALITE® GP 025/GP 25S on the actual substrate before commencing production.

The below guidelines are for continuous heat press and stationary press lamination and are recommendations only.

Application Instructions - Preparation

It is important to ensure that the equipment being used can apply uniform heat & pressure during the lamination process. Ensure that the temperatures in each zone of the press are uniform across the width of the press. A handheld infrared thermometer is recommended when setting up, to compare settings with actual conditions in the heat press. A tachometer is also recommended for setting the correct belt speed.

As there can be great variation in the fabrics produced, variation in chemical treatments used on fabrics, and variation in the fusing methods and equipment, it is important that these parameters are evaluated for each application, and it remains the responsibility of the user to test the specific fabric to ensure that the adhesion of ORALITE® glass bead heat applied tapes is satisfactory.

Step 1. Pre-heat the press to the settings in Table 1 or Table 2 depending on the substrate type and type of press. The temperature settings in Table 1 and 2 are equipment set points. Best performance is achieved by controlling tape exit temperatures (typically 10° C below the equipment temperature).

Step 2. It is necessary to determine if the chosen substrate will shrink at the above temperatures. To do this place a sample of the fabric on a flat table & mark a 100 mm x 100 mm square on the fabric using a permanent marker/pen. Pass the sample through the press. Allow to cool & measure the % reduction in size, if the % reduction is greater than 3 % in either direction, then the substrate will need to be pre-shrunk in advance of applying the reflective tape.

Step 3: For best performance, tape corners should be positioned on the garment to allow them to be sealed into a seam.

Table 1 – Operating Settings for a Continuous Heat Press

Fabric Substrate	Temperature	Time	Pressure
PVC Coated	145° C	17 sec	1 Bar
PU Coated	145° C	17 sec	1 Bar
Polycotton Blends	170° C	17 sec	1 Bar



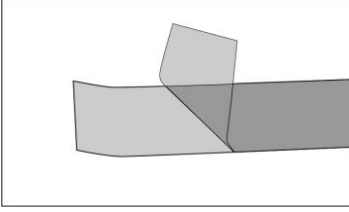
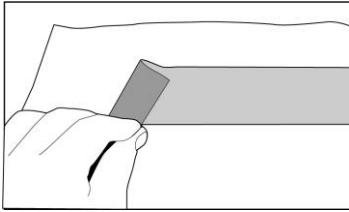
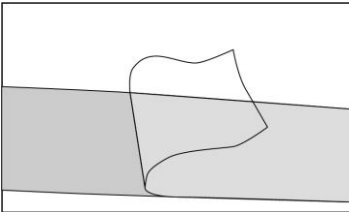
Table 2 – Operating Settings for a Stationary Heat Press

Fabric Substrate	Temperature	Time	Pressure*
PVC Coated	150° C	24 sec	0.5 Bar
PU Coated	150° C	24 sec	0.5 Bar
Lightweight Polycotton Blend	150° C	24 sec	0.5 Bar
Heavyweight Polycotton Blend	180° C	24 sec	0.5 Bar

* Pressure measured over entire press area

These are recommendations for selected fabrics. Other fabrics are possible and need to be evaluated.

Lamination

	<p>Step 1</p> <p>ORALITE® glass bead heat applied tapes are provided with a protective liner on both sides of the tape. The liner on the adhesive side (blue PE for GP025/GP 025S) must be removed prior to fabric lamination. The liner on the reflective side (white opaque PET) should be left on until after lamination is complete. In cases where more heat is required to properly laminate to a given fabric, both liners may be removed in advance; however, tape non-uniformities may result.</p>
	<p>Step 2</p> <p>Place the tape with the adhesive side facing the substrate. Do not stretch the tape as it is being applied. For best results ensure that the temperature and pressure are uniform across the width and throughout the length of the press.</p>
	<p>Step 3</p> <p>Allow the protective liner to cool to room temperature before stripping the liner. To remove, lift the protective liner at one edge & separate from the reflective surface by gently pulling back onto itself.</p>

Additional Information

All candidate fabrics should be tested for adhesion and washability. Chemical fabric treatments, such as water repellent and waterproof finishes, may contain silicone paraffin, fluorocarbon resin, or other material that may strongly influence the level of adhesion to the fabric and the lamination conditions. Because all fabrics have variations in construction and in the amount of finishes applied, ORAFOL makes no warranty that the end product will be suitable for its projected use, or that similar fabrics will perform in an identical manner. After application, allow 24 hours for curing before conducting any tests.

Other lamination methods can be used, in each instance the proper temperature, time & pressure settings must be tested for each fabric to ensure adequate adhesion. Do not HF weld through this tape.

Care Instructions

ORALITE® glass bead heat applied tapes are designed for application onto professional high visibility garments. They exceed the minimum reflectivity requirements of EN ISO 20471:2013 and are certified for washing at 60°C per ISO 6330 method 6N. Please refer to the specific product data sheet for the certified number of washing cycles. Changes in product performance due to modifications in the specified process are the responsibility of the user. The suitability of the intended care process must be determined.

ORALITE® glass bead heat applied tapes wash as well at lower temperatures as they do at higher temperatures. Therefore, select the lowest washing temperature that will ensure adequate cleaning of the fabric. This will allow environmentally friendly washing and help prolong the life of the garment.

Variations in environmental conditions, as well as chosen care process, may affect the life of your garment. Regular inspection of the garment performance against the requirements of EN ISO 20471:2013 is recommended. Information included in the care label should be verified to insure that the reflective material maintains compliance with EN ISO 20471:2013.

Recommended Care Symbols

GP 025/GP025S



GP 027



Product	Washing	Dry Cleaning
ORALITE® GP 025	25 cycles at 60° C*	Do not dry clean
ORALITE® GP 025S	50 cycles at 60° C*	Do not dry clean
ORALITE® GP 027	50 cycles at 60° C*	25 cycles**

*) as per ISO 6330:2012, Method 6N

**) as per ISO 3175:2010, Method 9.1

Hand Washing

Hand washing can be done with a sponge, a soft fabric cloth or a soft brush with lukewarm water and a mild detergent. After washing, the tape must be rinsed with clean water.

Household Washing

Washing Machine:	Standard household washing machine
Temperature:	30° C to 60° C
Detergent:	Standard household detergent, which contains oxygen bleach to reduce staining with hi-vis garments.
Setting:	“Coloured clothing without pre-wash”

Maximum washing time on highest temperature should not exceed 12 minutes.

Maximum total washing time should not exceed 50 minutes.

If ORALITE® glass bead heat applied tapes are used on fabrics that outbleed (run) easily; we recommend conducting the first two washes at 40° C. This can prevent colour staining.

Bleaching

Only use non-chlorine bleach when needed.

Drying

Household tumble dryer, normal, low heat.
Dry to “slightly humid”. DO NOT OVER DRY.
Maximum exhaust temperature shall not exceed 80° C.
For extended life, garment should be turned inside out before drying.

Chemical Cleaning / Dry Cleaning

GP 025/GP 025S - Do not dry clean.
GP 027 – 25 cycles as per ISO 3175:2010, Method 9.1

Ironing

Do not use steam.
Use a cool or warm temperature setting.
Avoid direct contact of the tape when ironing, use a press cloth.

IMPORTANT NOTICE

All ORALITE® products are subject to careful quality control throughout the manufacturing process and are warranted to be of merchantable quality and free from manufacturing defects. Published information concerning ORALITE® products is based upon research which the Company believes to be reliable although such information does not constitute a warranty. Because of the variety of uses of ORALITE® products and the continuing development of new applications, the purchaser should carefully consider the suitability and performance of the product for each intended use, and the purchaser shall assume all risks regarding such use. All specifications are subject to change without prior notice.

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