

Material Product Data Sheet

Amdry Braze Tapes and Preforms

Products: Braze Tapes and Braze Preforms

1 Introduction

Amdry™ Braze Tapes are comprised of a uniform layer of cast braze alloy and binder wound into rolls for ease of handling. Tapes are made to order according to the customer's specific brazing application requirements. Amdry Braze Tape is an easy, precise and economical way to apply braze filler metal. The tolerance on the dimensions of the tape is tightly controlled during manufacturing to ensure the amount of alloy placed in the joint is consistent. The use of Amdry Braze Tape can significantly reduce labor time and cut associated application costs.

With a focus on the environment and our customer, Oerlikon Metco has updated the tape and preform binder that results in a softer tape with the same high density, body and strength that Amdry tapes and preforms have always delivered. The improved binder delivers a tape that is easier to handle, especially for honeycomb applications. Whether thin or thick, the tapes have excellent body and strength, allowing for ease of handling and application. The new binder is also less prone to drying out compared to our previous binder.

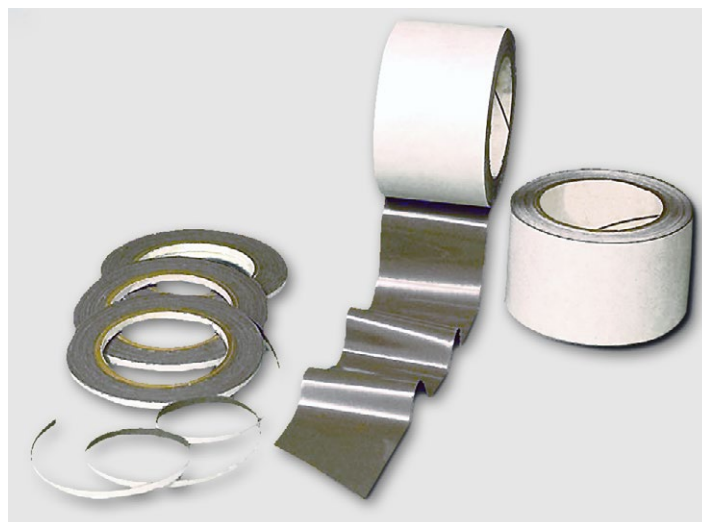
Amdry Braze Preforms are made of the same cast braze alloy / binder tape, but die cut to very tight tolerances. This provides customers with a very uniform method to apply braze alloy to complex geometries with the least amount of waste and very low labor application costs.

All Oerlikon Metco Amdry Braze alloys can be supplied as braze tape or preforms; however, some of the more exotic alloys such as those containing high percentages of aluminum or titanium might not braze as well when made into a tape or preform.

Tape products can be supplied with adhesive on one or both sides. Preform products can be supplied with adhesive on one side only. The adhesive aids in the placement of the braze material.

Quick Facts

Purpose	Joining
Process	Braze
Gap Size	> 0.043 mm (0.0017 in)
Shelf Life	24 months from date of manufacture



Examples of Amdry Braze Tape.

1.1 Typical Use and Applications

Oerlikon Metco Amdry Braze Tapes and Preforms are excellent for brazing:

- Complex assemblies.
- Large sheets and flat surfaces.
- High-volume production lots where rapid pre-placement of the braze alloy is required.
- Cylindrical components including tubular assemblies and large, segmented cylindrical sheet metal assemblies.
- Honeycomb assemblies, where the braze tape provides excellent weight control, even material distribution and ease of placement.
- Surface restoration, dimensional buildup and crack healing of turbine engine airfoils.

2 Material Information

2.1 Specifications

- The binder percentage is approximately 6 % by weight, yielding a brazed deposit that is approximately 55 % of the original thickness. For example, placement of a 0.2 mm (0.008 in) thick tape or preform will result in about 0.1 mm (0.004 in) of brazed material.
- Adhesive can be applied to one or both sides of the tape or preform, or no adhesive can be specified.
- Tape size (thickness and width) is specified by the customer's application and part size. Typical lengths are 7.5 and 15 m (25 and 50 ft). In the case of preforms, a customer-supplied drawing of the shape is required to make the cutting die.
- Tape and preforms are subject to the size restrictions shown in table below.

2.2 Application Information

- Apply by hand to the area to be brazed, removing all paper and plastic backing prior to brazing.
- If adhesive is specified, the adhesive will hold the braze filler metal in place through the furnace cycle.
- Thin tape and preforms can be resistance welded at several small points to help hold the filler metal and components together.
- Tapes without adhesive can be applied to the plates of a plate and fin heat exchanger.
- For honeycomb and similar applications, the tape can be pushed into the honeycomb and the honeycomb tack welded in place prior to brazing.

- For oddly shaped areas, such as those encountered for dimensional restoration and salvage applications, tape can easily be cut or trimmed to fit.
- Always press the tape or preform firmly in place during application, making sure that no air bubbles remain.

2.3 Key Selection Criteria

- Braze tape and preforms offer the greatest degree of consistency throughout the joint and part to part.
- For simple diameters, choose tape.
- Consider preforms for large quantities of complex shapes, and areas with unbrazed through holes.

2.4 Related Products

- Amdry Braze Paste can be considered for applications where automatic dispensing equipment can be used and applications where variability in depth and size does not lend itself to a tape or preform.
- Amdry Braze Paste should also be considered for applications using exotic braze alloys with high aluminum content that do not braze well as a tape or preform.
- The lower binder content in tape and preforms can reduce overall furnace times, compared to paste, particularly for loads with large quantities of braze material.

Size Restrictions

Dimension		Minimum ^a		Maximum	
Thickness	Without adhesive	0.2 mm	0.008 in	2 mm	0.08 in
	With adhesive ^b	0.225 mm	0.009 in	1.5 mm	0.06 in
Width		3.8 mm	0.150 in	305 mm	12 in
Roll length ^c	Tape only	3 m	10 ft	60 m	200 ft

^a Thinner tape or preforms may be possible depending on availability of braze filler powder with fine particle size distribution. Please contact your Oerlikon Metco Account Manager for further information.

^b With adhesive on one side. Additional minimum thickness required for adhesive on both sides.

^c Maximum roll length depends on thickness and width of tape. Examples:

- 0.12 mm thick x 25 mm wide (0.005 in x 1 in) tape: Length of 30 m (100 ft) maximum.
- 0.12 mm thick x 200 mm wide (0.005 in x 8 in) tape: Length of 15 m (50 ft) maximum. Weight restricts longer rolls.
- 0.5 mm thick x 50 mm wide (0.020 in x 0.2 in) tape: Length of 7.5 m (25 ft) maximum. Longer rolls are unstable.

3 Braze Processing Information

3.1 Key Processing Information

The following hold time and temperature information is recommended to insure complete vaporization of organics and solvents.

All hold times are starting points and should be adjusted for the quantity of braze material in the furnace load.

Hold (for binder outgassing)	Minimum of one for 15 to 20 min
Hold temperature	260 – 540 °C (500 – 1000 °F)
Hold at desired vacuum level	5 to 10 min or until vacuum level is recovered

4 Commercial Information

4.1 Ordering Information and Availability

- All Amdry Braze Tape and Preform products are made to order to meet customer specifications.
- For Braze Tape, customer should specify braze alloy to be used, tape thickness, width and roll length desired. Oerlikon Metco will advise as to feasibility.
- For Braze Preforms, a customer-supplied drawing is required for manufacture of the cutting die, in addition to the desired preform thickness.
- Customer should also specify whether adhesive is desired on one or both sides of the tape or preform.
- Typical lead times are three to four weeks after receipt of order. The first order of preforms requires additional lead time for the manufacture of the dies.
- Oerlikon Metco will also convert customer-supplied braze powders into tape or preforms. Please contact your local sales representative for more information.

4.2 Shelf Life

Shelf life for Amdry Braze Tapes and Preforms is 24 months from the date of manufacture when properly stored. During the serviceable lifetime of the product, the tape or preform should remain pliable and adhesive should remain tacky.

3.2 Post Brazing

- With proper braze cycles, there should be no residue after brazing.

4.3 Handling and Storage Recommendations

- Store in controlled conditions in a sealed package to prevent premature drying.
- Store at temperatures of 7 to 24 °C (45 to 75 °F), if possible.
- Do not freeze.
- Do not store above 27 °C (80 °F) to prevent premature aging of the tape, indicated by brittleness or adhesive that has lost tackiness.
- If shelf life has expired, and a visual inspection indicates the material appears unchanged, perform a test braze to confirm brazability.

4.4 Safety Recommendations

See the SDS (Safety Data Sheet) in the version localized for the country where the material will be used. SDS are available from the Oerlikon web site at www.oerlikon.com/metco (Resources – Safety Data Sheets) and are also referenced on the braze filler metal product data sheet.